Paul, Tyra

From: Bird, Michael W <Michael.Bird@novascotia.ca>
Sent: Friday, January 11, 2019 3:13 PM
To: Robichaud, Blake M; MacPhail, Helen; McNally, Kelly D; MacKinnon, David S; Cameron, Melanie J; O'Halloran, Bill W; Nikoloyuk, Jordan; Weseloh McKeane, Sean; Bekkers, Kevin F; McLean, Mark G; Dera, Beata E; Rillie, Claire Z; michael.hingston@canada.ca; MacKenzie, Tanya L; Johnson, Kathleen
Subject: RE: Alton One-Window Regulators Pre-Meeting Conference Call
Attachments: Letter to B. Kiley Jan 11 19.pdf

Hi everyone,

As I mentioned on the call this week, the deadline for Alton's response to public comments in front of the NSUARB respecting their application to renew their authorization to construct was today, I have attached their response to this e-mail. It is fairly high-level, but looks to address some common themes in the comments.

I also wanted to draw attention to section 2.8 on Emergency Response Plans as it is relevant to the discussion on this weeks call.

2.8 Emergency Response Plan (ERP)

Several comments were made in relation to evacuation and response plans in the event of an emergency. Protecting public safety and the environment are core values of Alton. The purpose of an ERP is to ensure there are documented procedures and training to manage emergency situations should they arise. ERPs are developed to support a given phase of development, ranging from the construction phase to operational phase when a facility is in-service. An ERP is presently in place for use on the Alton Project during active site construction. A second construction plan will be developed to address brining operations and a third plan will be in place prior to the storage facility becoming operational, which is expected in 2022.

Each ERP is intended to provide guidance and direction for responding to unplanned events during a particular stage of the Project. This helps ensure, as the Project activities change, that the ERP is appropriate for the current activities. All personnel will be properly trained on the ERP for the appropriate phase of development. Alton will work with emergency responders, including the local fire departments, to ensure familiarity with facilities and proper training on the ERP.

The ERPs will identify residents who could potentially be impacted by an unplanned event at the Alton facilities. During brining operations and construction activities, there is no situation that could result in a need for a response by residents. The brining operation will be ongoing for 24 to 36 months during which time brine and water are being transported to and from the river location. No natural gas will be present at either site during this time.

Once the caverns have been constructed, an ERP will be put in place that will address the risks and potential impacts for hydrocarbon storage operations. Development of the ERP will include discussions and planning with local first responders. Based on the identified events and the potential impact areas, residents located within these areas will receive relevant communications pertaining to Emergency Response Planning well in advance of the project becoming operational in 2022.

I hope that helps,

Michael

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-----Original Appointment-----
From: Robichaud, Blake M <Blake.Robichaud@novascotia.ca>
Sent: January 9, 2019 10:32 AM
To: MacPhail, Helen; McNally, Kelly D; MacKinnon, David S; Cameron, Melanie J; Bird, Michael W; O'Halloran, Bill W; Nikoloyuk, Jordan; Weseloh McKeane, Sean; Bekkers, Kevin F; Mark.McLean@dfo-mpo.gc.ca; Dera, Beata E; Rillie, Claire Z; michael.hingston@canada.ca; MacKenzie, Tanya L; Johnson, Kathleen
Subject: Alton One-Window Regulators Pre-Meeting Conference Call
When: January 9, 2019 3:30 PM-4:30 PM (UTC-04:00) Atlantic Time (Canada).
Where: Dial-in information in appointment
Importance: High

Good Morning,

Apologies for the short notice same-day call, but this looks like the only time the works for most people before next week's one window.

We will be having a conference call this afternoon in advance of the January 15th Alton Gas one window so that we have a chance to touch base on any live issues or items that should be discussed amongst the regulators before we meet with the proponent.

If you are unable to participate in the call, please contact me directly via phone (902.478.9063) or via email with any items you would like flagged during the call and we can ensure there is some follow-up with you prior to the one window, or alternatively forward the appointment to someone who can speak on your behalf.

Please use the following information to call in:

Toll-free dial-in number: 1-844-220-3467
Local dial-in number: 902-566-0098
Conference ID: [redacted]

Per the email sent earlier this morning, the proponent has put forward the following items to inform the one window agenda:

1. **General update**
   - In-service date for project: 2022
   - Brining - timeline for commencement of brining being determined
   - Focus on pipeline EA conditions
   - Ongoing geological evaluations

- Regulatory matters
- Community engagement

2. Estuary

- Removal of sediment from mixing channel
- Toxicology testing
- Fish barrier – consideration by Alton
- Other

3. Gravity Survey

- Work completed as described previously by Alton.
- Next steps involve data analysis and report.

4. Pipeline – NS Environment/ DNR

- Alton to provide general update on re-route activities
- Discuss commencement of work
- Proposed Wilderness Area Compensation Plan – Update from NS Lands & Forestry on options and value of land; discussion of certain parcels; discussion of other options
- Obtaining easements from Crown for pipeline route
- Other

5. Other matters/ roundtable discussion

Thank you,

Blake Robichaud
Policy Analyst

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January 11, 2019

Mr. Bruce Kiley
Chief Clerk of the Board
Nova Scotia Utility and Review Board
3rd Floor, Summit Place
1601 Lower Water Street
Halifax, NS B3J 3P6

Dear Mr. Kiley:

RE: Alton Natural Gas Storage LP – (Alton) Request for Extension to Approval to Construct an Underground Hydrocarbons Storage Facility; M08974

On November 14, 2018, Alton applied to the Nova Scotia Utility and Review Board (NSUARB or Board) for an Extension to its Approval to Construct (Extension Request). As part of the regulatory review process, members of the public were invited to submit letters of comment by December 14, 2018. In accordance with the Board's process schedule, Alton provides its reply to these letters of comment.

Alton has focused its reply on matters raised within the letters of comment which fall within the NSUARB stated mandate in relation to this matter. However, many letters commented on matters which are outside of the scope of the NSUARB's review. In an effort to address misconceptions outlined in the letters of comment, Alton has also provided commentary on these matters. Alton notes that information to address these matters is readily available to all members of the public online through a number of sources, a listing of which is found in Appendix 1 of the attached.

Should you have any questions, please contact the undersigned.

Yours truly,

Tim Church
President, Alton Natural Gas Storage
Vice-President, Stakeholder Relations
AltaGas Ltd.

Table of Contents

1. Overview of Alton Project, Construction Update & Scope of NSUARB review of extension request

1.1 Overview of Alton Project

The Alton Project will help provide Nova Scotians with affordable and reliable natural gas year-round. The underground facility will store natural gas when demand is low so customers can withdraw natural gas when demand increases, typically in colder winter months. Given the recent natural gas production declines and closing of Nova Scotia's two producing natural gas projects (the Sable Offshore Energy Project and Deep Panuke), natural gas storage will provide an increasingly important supply cushion for consumers which is currently lacking in the local market.

As noted in AltaGas' original Application for Approval to Construct[1], the Alton Project consists of multiple caverns being developed by solution mining in an underground salt deposit. Solution mining is the process where water is used to dissolve a salt deposit to form caverns, which then can be used as storage facilities. In the case of Alton, the salt deposit is a natural geological formation. The caverns, to be located at an approximate depth of 800m, and their accompanying facilities will be capable of safely storing millions of cubic meters of natural gas during peak production/low demand periods and delivering it back to the natural gas pipeline system during periods of supply deficits. Salt cavern natural gas storage has been used extensively in North America for approximately five decades.[2]

The caverns will be developed and operated in a manner that minimizes or eliminates adverse effects on the environment and provides significant economic benefits to Colchester County and the Province of Nova Scotia.

1.2 Construction Update

Alton has constructed many elements of the Alton Project which are ancillary to the underground hydrocarbon storage facilities that are the subject of this application to the Nova Scotia Utility and Review Board ("the Board" or "NSUARB"). The already constructed elements include: water pumping facilities, facilities to support brining, and the drilling of three wells for potential cavern storage at the site. As well, 12 km of water and brine line pipelines have been installed linking the cavern site to the river site. Construction has largely been completed at the river site, including the construction of a mixing channel and its associated intake infrastructure, known as a gabion wall, brine and water holding ponds and associated buildings which house pumps and control equipment. Alton is progressing work on the natural gas pipeline which includes fulfilling related permitting, environmental and safety requirements prior to beginning construction. Approximately $70 million has been spent on the Alton Project to date.

Future construction activity will include additional cavern well drilling at the cavern site. Some letters of comment raised concerns about the proximity of the cavern locations to residential

[1] M04172, Application for Approval to Construct (redacted), Exhibit: U-1, June 1, 2011

[2] Final Report: Environmental Registration Document for the Proposed Alton Natural Gas Storage Project, 2007, P-i

homes. Alton will not utilize the well that is close to the edge of the property, closest to the Brentwood Road and residents, for cavern development. As such, cavern wells will now be developed further away from residents on the Brentwood Road than was previously planned by Alton. Any well that will not be used will be properly decommissioned according to regulatory requirements and industry best practices.

1.3 Scope of NSUARB Review of Extension Request

As noted in the Board's Public Notice for the Extension Request, the NSUARB's review of Alton's Extension Request is to consider issues of public safety. The NSUARB's mandate on the matter does not include environmental matters, nor is it the economic regulator of Alton.

The Alton Project has been the subject of considerable review, including, but not limited to, the following:

- Provincial Environment Assessment (EA) approval, with conditions: Alton Underground Natural Gas Storage Project (December 2007)
- Provincial EA approval, with conditions: Alton Natural Gas Storage Pipeline project (May 2013)
- Industrial Approval to Operate a Brine Storage Pond, with conditions (2016)
- Nova Scotia Utility and Review Board – Approval to Construct, with conditions (2013), including oversight by a Board-appointed Certifying Authority (CA)
- Department of Fisheries and Oceans (DFO) review and approval with conditions regarding impacts to fish and fish habitat and Species at Risk (2010)
- A Nova Scotia Environment and DFO approved Estuary Monitoring Plan (2015)
- The Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO) third party review of the project on behalf of the Assembly of Nova Scotia Mi'kmaq Chiefs and the subsequent technical working committee that was established among the Mi'kmaq of Nova Scotia, the provincial and federal governments and Alton as the proponent. This review focused on the potential impacts of cavern development on the marine environment and took place in 2014-2015.

Recognizing the various regulatory authorities that have jurisdiction over the Alton Project, the extensive evaluation of the Project that has already occurred (including a detailed review of Alton's original application for Approval to Construct) and the comprehensive ongoing regulatory oversight in respect of the execution of the Project, it is Alton's understanding that the focus of the Board's review should be on issues of public safety in connection with extending the time period of the Approval.

Furthermore, Alton submits the Extension Request should not necessitate a wholesale re-evaluation of the safety of the cavern development as that evaluation has already been performed by the Board with the assistance of the Certifying Authority (CA). Moreover, the safety of the cavern development is subject to the ongoing regulatory oversight of the NSUARB and its CA as a result of the detailed conditions included in the Board's original Approval to Construct, which Alton is not proposing to alter.

Although significant progress has been made on the project since the Approval to Construct was issued, Alton has faced delays. The in-service date for cavern storage is 2022. Alton's Extension Request to the NSUARB reflects the need for additional time to complete cavern development. Additional construction activity, such as construction of the natural gas pipeline and compression facilities at the cavern site, will take place concurrently with cavern development. However, such developments will require a separate Approval to Construct from the NSUARB which will assess the safety of the proposed activities.

Given that Alton is not proposing to alter the substantive conditions attached to the original Approval to Construct, including those that involve the ongoing oversight of the CA, the Extension Request does not have any additional impact on public safety. Alton therefore submits that the Board grant Alton's Extension Request.

2. Responses to Letters of Comment

The following sections address matters noted in letters of comment.

2.1 Legal and regulatory compliance

Some letters of comment suggest that Alton will operate without complying with laws or regulatory requirements. Alton will continue to comply with all regulatory and legal requirements. As noted in the Approval to Construct, Alton is required to ensure that all works are carried-out and completed in accordance with all federal, provincial, municipal laws and in particular, the *Underground Hydrocarbon Storage Act*, the *Underground Hydrocarbon Storage Regulations* and *The Code of Practice Respecting the Underground Storage Regulations of Hydrocarbons* (Code of Practice), as amended from time to time; and, all applicable codes and standards, as amended from time, to time.

2.2 Suggestion to delay NSUARB decision pending approvals from other regulators; independent review

Some letters of comment recommended a delay in the NSUARB's decision on Alton's application for an extension until other approvals, or conditions of approvals, are met. Alton submits that this proposal is unworkable and unnecessary given the involvement of multiple agencies (provincial, federal) and the number of permits that need to be issued as the development progresses. There are numerous regulatory approvals and agencies that need to be engaged and each must regulate within its specialized jurisdiction, and respect what is within the jurisdiction of other authorities. Alton further submits that compliance and enforcement mechanisms exist in relation to the various regulatory approvals and as such an appropriate level of oversight is already in place.

Some letters of comment suggested that an independent review should be undertaken regarding project safety in relation to the Extension Request. Alton submits that this is already being addressed through the oversight of the Board, an independent quasi-judicial body, and its third-party CA.

2.3 Suitability of salt caverns for gas storage and Expert review

Some letters of comment question the suitability of salt formations as a safe method for storing natural gas. The Stewiacke Formation is the main salt formation within the Windsor Group which is made up of several geologic formations. The Stewiacke Formation underneath the Alton Hydrocarbon Storage-Area Lease offers areas of ideal conditions to provide safe, secure storage for natural gas. As noted in the Alton EA (2007), salt is an ideal substance in which to develop storage[3]. Salt forms a tight seal through which stored fluids or gas cannot escape.

Expert review

Alton has undertaken extensive technical work in the area to ensure that the development will be a safe, state-of-the-art, modern storage facility. This has included assessments by geologists, geophysicists and globally recognized cavern experts. These experts hold professional designations such as Professional Geologist (P.Geo) and Professional Engineer (P.Eng). The work by these professionally accredited experts has involved de-risking all aspects of the cavern development. This work helps ensure the caverns will be built to the highest standards and according to all accepted professional procedures, regulations, codes and safety standards. In particular, Alton has engaged recognized geological, geomechanical and solution mining experts as part of the Project's development.

For example, RESPEC is a global leader in geoscience and engineering and was engaged to perform a geomechanical study to determine the feasibility of storing natural gas in the Stewiacke Formation and the geomechanical stability of cavern design.[4] During this study RESPEC assessed cavern geometry, operating conditions, stratigraphy, rock properties, fluids, salt dilation, non-salt strength properties, in-situ temperature, stress fields, and built numerical models which were used for performance simulations. Furthermore, RESPEC has also worked extensively to evaluate safe cavern operating pressures, anticipated cavern closure rates, production casing strains, and ground subsidence associated with the caverns.[5]

In addition, contrary to the suggestion that there was not an independent evaluation of the information submitted in support of Alton's original Approval to Construct, the Board-appointed Certifying Authority (CA) was and will continue to be extensively involved in the evaluation and ongoing oversight of the cavern development.

Independent Certifying Authority (CA)

A CA is an independent, technical body which provides expert review and advice on a given subject matter. Regulators globally engage CAs to review development projects, proponent applications, ongoing operations and other matters. BGC Engineering Inc. (BGC), an applied earth sciences company, was designated by the Board as the CA for the Alton Project[6]. BGC

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[3] Final Report: Environmental Registration Document for the Proposed Alton Natural Gas Storage Project, 2007, pp 9, 46.

[4] M04172, Exhibit: U-1, Appendix F.

[5] RESPEC Geomechanical Evaluation of Alton Natural Gas Storage Cavern No. 1RSI-2613 Final, 2016

[6] Alton understands that the NSUARB is in the process of designating a new CA in place of BGC.

reviewed Alton's Application for its Approval to Construct. The project team from BGC which reviewed the application consisted of personnel with technical expertise in the following areas: rock mechanics, underground caverns, underground storage caverns and regulatory requirements, geomechanics and solution mining, petroleum geomechanics, mechanical and electrical engineering.

Following an in-depth review, the CA recommended that the NSUARB grant an Approval to Construct, with conditions, for the Alton cavern development.[7] The Board issued the Approval to Construct, which included 13 conditions and 28 compliance requirements[8]. Since the Approval was granted, Alton has provided information to the CA and has responded to its inquiries. Alton will continue to report to the Board and the CA as the cavern development progresses.

In addition, Alton will ensure that the Project is designed, constructed, operated, maintained and decommissioned in accordance with all applicable standards, laws and regulatory requirements, including the following:

1. *Underground Hydrocarbons Storage Act*
2. *Underground Hydrocarbons Storage Regulations*
3. *Code of Practice, (NS Department of Energy and Mines).*
   The Code provides both requirements and guidance in the management of storage facilities throughout project life, with a primary purpose of safe operation to protect both the public and the operator's employees. Section 3.1 includes requirements for the geology of cavern storage projects.
4. *CSA Z341 Storage of Hydrocarbons in Underground Formations*
   The CSA Z341 standard sets the requirements for the design, construction, operation, maintenance, abandonment and safety of underground storage systems, with section 5.3 addressing the geology of cavern storage projects. The technical committee, which consists of regulatory, industry, government and other experts from across Canada and the United States, is responsible for the CSA[9] standard and investigates every pertinent incident worldwide and reviews the latest relevant technology, to ensure that the standard covers all potentially hazardous situations.[10]

2.4 Past incidents & cavern safety

Safety incidents which have occurred at other facilities were noted in some letters of comment. While one letter of comment referenced a journal article (P. Bérest & B. Brouard: 2003) to question the safety of salt cavern storage, Alton wishes to draw the Board's attention to the article abstract which plainly notes salt cavern storage is the safest way to store large quantities of hydrocarbons and describes how lessons learned from past incidents have led to considerable improvements in storage design and operation:

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[7] M04172 BGC Report of Alton Natural Gas Storage Project, Exhibit U-3, filed May 29, 2013.

[8] M04172 Approval to Construct, Document 55170, filed Sept 4, 2013.

[9] CSA Group is accredited by the Standards Council of Canada, a crown corporation which promotes efficient and effective standardization in Canada.

[10] Final Report: Environmental Registration Document for the Proposed Alton Natural Gas Storage Project, 2007: p 25.

> *Thousands of salt caverns (100 in France alone) are being used to store hydrocarbons. This is the safest way to store large quantities of hydrocarbons: salt formations are almost perfectly impermeable, and fire or explosion is impossible underground. However, a small number of accidents (blow-out, product seepage, cavern instability) have occurred in the past. Cavern abandonment is also a concern in some cases. This paper describes several accidents and the lessons that have been drawn from them, leading to considerable improvements in storage design and operation.*

In addition, several letters of comment inaccurately reference United Kingdom – HSE Statistics as reported in HSE Research Report RR 671 (2008)[11]. By way of explanation, the report says on page 2: *The failure rate for a geological failure of the storage cavity in UGS [underground storage] facility is of the order of 10^{-5} failures per well year…In major hazard terms this equated to a risk that can be considered negligible.* Further the report says the risk is dominated by release from the well connecting the storage cavity to the surface, but that has a similar order of failure of 10^{-5} per year. Furthermore, Alton meets all five of the report's recommendations.

The Alton EA (2007) reviewed the incidents noted in several letters of comment, including those that occurred in Fort Saskatchewan, Alberta and Yaggy, Kansas [Hutchinson].[12] Alton will apply all applicable learnings to ensure that the Alton facility operates at the highest levels of safety.

Applying lessons learned from past incidents is a key driver for continuous safety improvement for Alton. Similarly, as noted above, standards such as CSA are updated frequently to incorporate learnings from past incidents and improvements in technologies and other industry developments.

In addition, it is important to note that several of the incidents referenced in letters of comment are not analogous to the Alton Project. For example, the incident at Aliso Canyon, California in 2015 did not involve modern, engineered salt caverns. Aliso Canyon involved a depleted hydrocarbon reservoir that had been drilled in the 1950s and was converted to store natural gas. A casing leak in the well led to the storage failure. Investigations note that a contributing factor in the incident was the removal of safety valves in the 1970s that were never replaced.

The 2014 incident at the Prud'homme salt cavern storage facility in Saskatchewan, which was built in the 1960s, was the result of a failed steel casing pipe two metres below the surface. During the incident no one was hurt.

To avoid these types of incidents, Alton will verify the integrity of all casings prior to the injection of any natural gas into the cavern, and prior to the facility becoming operational. Testing will continue throughout the life-cycle of the facility to verify the integrity of the cavern infrastructure. Further, CSA Z341, which Alton must follow, contains specific requirements to ensure ongoing integrity of the cavern, including casings, and associated infrastructure.

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[11] Failure rates for underground gas storage: Significance for land use planning assessments. Prepared by Deborah Keeley, Health and Safety Laboratory for the Health and Safety Executive 2008.

[12] Final Report: Environmental Registration for the Proposed Alton Natural Gas Storage Project (2007), p 25.

2.5 Geology

Salt is often found in large, relatively homogenous deposits. It dissolves easily with water, making cavern formation through dissolution possible. Unlike other rock types which can fracture in a brittle manner and maintain leakage zones, under significant pressure and temperature, salt deforms in a plastic manner. When this plastic salt flow ceases, the salt resolidifies. At Alton this "flowage" happened approximately 330 Ma, (million years ago). The Stewiacke Formation has been rock salt for the last 300 Ma.

Extent of Geological Information

Mr. Grantham suggested in his letter of comment that the Stewiacke Formation may not be suitable for cavern development and that the geological information in relation to the Project has been limited. To the contrary, as described above, Alton has undertaken significant analysis of the Stewiacke Formation to ensure that the cavern locations are appropriate for cavern development. During the geologic reviews which have occurred to date, all available subsurface data have been used, including well data from the three wells which were drilled in 2014, all nearby mineral hole data, 2-D and 3-D seismic data, gravity surveys, academic research papers, industry reports and independent consultant reports. The Provincial EA review in 2007 noted that Alton drew on a range of geological information that was available at the time, and not just one well.[13]

In addition, a full geological data review was conducted in 2016 for the Alton Project which included all geological, geo-mechanical, geophysical, gravity and drilling information in the vicinity of the Alton storage lease. The conclusions of the review reaffirmed that the Stewiacke Formation over the Alton Hydrocarbon Storage Area Lease has all required characteristics to support a gas storage facility.

Alton will continue to apply any new geological knowledge it acquires to the Project and would be pleased to provide the NSUARB and its CA an updated report in this regard. Alton notes that all geological data, including well logs from drilling conducted in 2014, have been submitted to the appropriate Nova Scotia Government department. This point corrects one letter of comment which suggested that well logs and other data have not been provided to government.

Geologic faults

Some letters of comment assert that there is an unacceptable risk associated with geologic faults in the region. The Shubenacadie Basin is a half graben with the bounding faults north of the Alton facility. These faults are not dramatic events which develop huge offsets during an earthquake, rather they have displacement over long spans of geologic time.

Seismic and well interpretation indicate that the fault system likely began in the Middle Carboniferous, (~330 Ma), and ceased movement towards the end of the period (300 Ma).

[13] Final Report: Environmental Registration Document for the Proposed Alton Natural Gas Storage Project, 2007, p 46.

Seismicity and risk of earthquakes

Some letters raised concern with earthquakes. It is notable that this matter was previously addressed in Section 2.7 of the Application for Approval to Construct. By way of background, the Maritime region is located in a stable continental region within the North American Plate and, as a consequence, has a relatively low rate of earthquake activity. When describing plate tectonics, the Maritimes is a trailing edge plate margin, unlike converging, divergent and transform plate boundaries, where the rate and size of seismic activity is directly correlated with plate interaction.

Mr. Grantham quotes a paper which suggests that a dissolution process in Bulgaria "has generated, and continues to generate magnitude 4 earthquakes since the dissolution began". The extensive cavern developments and salt mining in Bulgaria are in a very active seismic area. The Bulgarian developments are near the Vrancea earthquake region which is one of the most active seismic regions in Europe with the deepest earthquakes in the entire Carpathian area.[14] As previously mentioned, the Maritime region is stable and has relatively low earthquake activity.

Concerns about isostatic rebound and its effect on the cavern development are unfounded with respect to the Alton Project. It is true that North America is still feeling the effects of isostatic rebound, (typical rates in North America are 1 centimeter per year or less). However, there is no parallel between isostatic rebound and the "bumps" in coal mines in Springhill, Nova Scotia.[15] There are well-established salt mining operations in Nova Scotia and New Brunswick. The underground workings at each of those locations would dwarf the size of the caverns planned for Alton. If isostatic rebound was a concern, the effects would have already been evident at these well-established mining operations.

Dolomites

The Stewiacke Formation proposed for cavern development at Alton is suitable for natural gas storage. Although the Stewiacke Formation is time equivalent with other salt deposits in Nova Scotia, such as in Canso as noted in one letter, it cannot be compared to those deposits when considering appropriateness for natural gas storage. Unlike other formations in the area, such as the MacDonald Road and Green Oaks Formations which lie stratigraphically above the Stewiacke Formation, there are no dolomites in the Stewiacke Salt Formation where the Alton caverns will be constructed.

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[14] EQ Report: Vrancea earthquake zone : one of the most active seismic areas in Europe (Carpathians): August 20, 2011

[15] Notley, K.R, "Rock Mechanics Analysis of the Springhill Mine Disaster, October 23, 1958" Mining Science and Technology, 1 (1984) 149-163.

Subsidence

The issue of subsidence was raised in some letters of comment. Subsidence is a concern with any underground activity including solution mining. The subsidence concerns surround how drainage and surface structures will be affected.

CSA Z341 requires that a subsidence modeling program be implemented and that annual surveys be conducted to measure changes in elevation. Surface subsidence predictions were performed by RESPEC using sophisticated proprietary computer programs. For the Alton site, a maximum subsidence of 3.6 mm was predicted at the end of a 30 year simulation. The predicted subsidence decreases to less than 1.0 mm at a distance of approximately 500 m from the center of the cavern.

RESPEC concluded that values of vertical subsidence are very small and are not expected to have any significant effect on the area drainage or surface structures[16].

2.6 First Nation Consultation

Alton is committed to building long-term, mutually beneficial working relationships with Indigenous communities while recognizing and respecting aboriginal and treaty rights, individual values and traditions. Through Alton's ongoing engagement with area First Nations, including Sipekne'katik, and the various regulatory processes undertaken to assess the project (including two EAs and an approval to operate the Brine Storage Pond), serious efforts have been made to identify and address the concerns of First Nations with respect to the Alton Project. The commitments made by Alton, coupled with the conditions imposed by the regulators, reflect these efforts.

Sipekne'katik has written to the Board expressing concern about the proposed extension of the Approval to Construct, stating the construction and operation of the caverns will involve mining and suggesting that there is the potential to adversely impact Sipekne'katik's Aboriginal and treaty rights. Similarly, other letters of comment have suggested that impacts on the Mi'kmaq of Nova Scotia have not been appropriately taken into consideration.

Alton notes that the issue of the adequacy of Crown consultation in relation to the project is currently being considered by the Minister of Environment in relation to the issuance of the Industrial Approval to operate the Brine Storage Pond, pursuant to a decision of the Nova Scotia Supreme Court *Sipekne'katik v Nova Scotia (Environment) 2017 NSSC 23*. In the event that Sipekne'katik disagrees with the Minister's determination, Sipekne'katik may elect to continue its appeal to the Supreme Court of Nova Scotia which already has placed before it an extensive record supplemented by affidavit evidence. In Alton's submission, the Board should not undertake a duplicative review in such circumstances.

Alton would propose not to duplicate this record before the Board unless the Board directs.

[16] RESPEC Geomechanical Evaluation of Alton Natural Gas Storage Cavern No. 1RSI-2613 Final: 2016

Throughout this response and in the original application and associated documents for the Approval to Construct, Alton has identified measures that are in place to ensure the safety of the construction of the storage caverns and limit any impacts. The Nova Scotia Environment (NSE) EAs considered impacts on Aboriginal and treaty rights. Such impacts have not changed as a result of Alton's Extension Request. Alton is not proposing any changes to the Board's Order other than an extension to the Approval to Construct and, as a result, there are no anticipated additional impacts on First Nations associated with the Application currently before the Board. As required in the Board's original Approval to Construct, Alton will continue to comply with all applicable laws and codes and will provide a copy of required federal, provincial and municipal approvals to the Board and CA prior to commencing construction of those portions of the proposed works which would be subject to such permits and approvals.

In addition to the efforts that have been made to identify and address First Nation concerns about the Project, Alton is committed to ongoing engagement with First Nations throughout the life of the Project so that any issues or concerns that may arise can be addressed in a timely manner. Such ongoing engagement has been made a condition of several Project approvals. Additional information on Alton's engagement with Indigenous communities can be found on its website, under Indigenous Relations, as noted in Appendix 1.

Alton remains open to entering into Agreements with Mi'kmaq communities on matters including safety, environmental protection and economic development.

2.7 Community Engagement

Contrary to the suggestion that Alton has not engaged with the community, Alton has been engaged in ongoing information sharing and discussions with the community about the Project for many years.

As noted above, two EAs were conducted for the Alton Project. Both assessments included public consultation and involvement components.

Alton has been participating in community meetings and events as well as meeting with local stakeholders, responding to emails and phone calls to address questions about the Project. Examples of local meetings and events are listed in the Public Consultation section of the FAQ on the Alton website. The FAQ itself is based on questions received from members of the community.

A Community Liaison Committee (CLC) was established in November 2015, and is working as an advisory committee, providing practical advice and feedback from the community on the company's activities. The CLC meets regularly and includes representatives of local government, landowners, business and community members. Alton follows the Nova Scotia Department of the Environment's Guide for the Formation and Operation of a Community Liaison Committee. The Terms of Reference for the Alton CLC are readily available on the Alton website as are summaries of minutes from the meetings. The Alton website (www.altonnaturalgasstorage.ca) is a transparent platform to share project information that

includes links to regulatory filings (including the two EAs and the 3rd party science review led by the Mi'kmaq), and an open invitation to join the contact list for project updates.

2.8 Emergency Response Plan (ERP)

Several comments were made in relation to evacuation and response plans in the event of an emergency. Protecting public safety and the environment are core values of Alton. The purpose of an ERP is to ensure there are documented procedures and training to manage emergency situations should they arise. ERPs are developed to support a given phase of development, ranging from the construction phase to operational phase when a facility is in-service. An ERP is presently in place for use on the Alton Project during active site construction. A second construction plan will be developed to address brining operations and a third plan will be in place prior to the storage facility becoming operational, which is expected in 2022.

Each ERP is intended to provide guidance and direction for responding to unplanned events during a particular stage of the Project. This helps ensure, as the Project activities change, that the ERP is appropriate for the current activities. All personnel will be properly trained on the ERP for the appropriate phase of development. Alton will work with emergency responders, including the local fire departments, to ensure familiarity with facilities and proper training on the ERP.

The ERPs will identify residents who could potentially be impacted by an unplanned event at the Alton facilities. During brining operations and construction activities, there is no situation that could result in a need for a response by residents. The brining operation will be ongoing for 24 to 36 months during which time brine and water are being transported to and from the river location. No natural gas will be present at either site during this time.

Once the caverns have been constructed, an ERP will be put in place that will address the risks and potential impacts for hydrocarbon storage operations. Development of the ERP will include discussions and planning with local first responders. Based on the identified events and the potential impact areas, residents located within these areas will receive relevant communications pertaining to Emergency Response Planning well in advance of the project becoming operational in 2022.

2.9 Construction Safety

Some letters of comment raised concern about noise and safety during the active construction phase of the project. A Health, Safety and Environment Construction Management Plan (HSECMP) is written for the Project and outlines the applicable health, safety and environment (HSE) considerations. As per the Plan, all personnel are expected to demonstrate the necessary positive HSE work behavior to achieve a vision of zero harm to people, property, and the environment. Everyone must demonstrate continuous commitment to the following HSE behaviors:

- stop any work if it is deemed unsafe or could harm the environment;
- ensure hazards are identified, risks assessed and adequate control measures are

implemented;
- proactively participate and follow HSE requirements;
- proceed only if you are adequately qualified, suitably trained, and have sufficient experience to perform tasks;
- report all hazards and incidents.

Regarding truck traffic during active construction, Alton will continue to ask all truck traffic to travel 10km/h below the posted speed limit when traveling to and from the Project sites. While construction of any kind will produce some noise, noise emissions generated during construction and operations will not exceed provincial guidelines at the property boundaries of the site.[17]

2.10 Gas Facility and Pipeline Safety

Some letters of comment raised questions regarding the safety of Alton's planned facilities and pipeline. Surface facilities will be designed and constructed in accordance with the requirements of ASME Standard B31.3, Process Piping and the appropriate sections of the ASME Boilers and Pressure Vessels Code. Pipelines will be designed and constructed in accordance with CSA Standard Z662, Oil and Gas Pipeline Systems, which is the national pipeline safety standard in Canada.

The gas facility will be designed with redundant safety controls and emergency shutdown safety valves. The gas facility will have fire detection, gas monitors, isolation systems, emergency shut-down devices and automated fire extinguishers. All gas piping and equipment will be pressure tested and all gas pipeline welding will be x-rayed. Clean, processed and market-ready natural gas from the Maritimes & Northeast Pipeline system will be used for storage in the salt caverns. There are no liquid petroleum products involved in the Project.

Prior to the start of construction, Alton will be required to apply to NSUARB for an Approval to Construct for its pipeline and compression facilities. Such reviews will assure the safety of this infrastructure.

2.11 Compliance with monitoring plan requirements and federal Fisheries Act

While beyond the scope of the NSUARB review of the Extension Request, several of the letters incorrectly assert that Alton is not in compliance with the "Fish and Fish Habitat" sections of its provincial Environment Assessment, has not appropriately developed a monitoring plan, or is not in compliance with the federal *Fisheries Act*.

Alton must be in compliance with all federal, provincial and local requirements, including all provisions of the *Fisheries Act*. The Project has been the subject of considerable review by regulators and expert government departments. In particular, DFO has said that as designed,

[17] Final Report: Environmental Registration for the Proposed Alton Natural Gas Storage Project (2007), p. 23

and with mitigation in place, the Project is not likely to contravene the fish habitat protection provisions of the Fisheries Act, or the Species At Risk Act.[18]

The Project's river monitoring plan, which was required by the terms and conditions of the NSE Minister's EA Approval, was finalized based on input and or direction from:

- federal and provincial departments and regulators, including Environment and Climate Change Canada (ECCC), DFO, NSE and the Nova Scotia Office of Aboriginal Affairs;
- expert engineering and biological consultant advice;
- the results of a Mi'kmaw–led independent science review in 2015; and,
- biological research undertaken by Dalhousie University, Bible Hill Campus, over the past 10 years.

The monitoring plan is readily available on the Alton website, along with presentations and other background information.

As required by condition 2.1(b) of the NSE Minister's EA Approval, the monitoring plan was shared by Alton with ECCC for its review and comment.

The monitoring plan requires salinity to be within naturally occurring background levels for the Shubenacadie River Estuary within 5 metres of either side of the mixing area in Alton's engineered channel. The monitoring plan also requires Alton to undertake laboratory toxicity testing on Striped Bass once brining operations have commenced. Although the brining has not yet started, initial toxicity testing by researchers at Dalhousie University using simulated brine and salt core samples from the Alton site has taken place.

The tests to date confirm project assumptions that, as designed, the Project will not impact fish or fish habitat. Information about the toxicity testing can be found on the Alton website The toxicity testing will continue when the brining process begins.

Some work will be required at the river site to remove silt which has built-up in the mixing channel. This build-up of silt occurred because the solution mining process, which involves the flow of water in and out of the channel, has not yet started. Some letters of comment suggest that Alton is either not fully aware of this matter or does not intend to work with regulators to develop plans to remove the silt. To the contrary, Alton has discussed the matter with DFO and will develop a plan which meets regulatory requirements prior to solution mining activities. The removal of mud and silt through the use of pumping equipment or dredging is common practice in Nova Scotia and all marine environments. Alton will meet all regulatory requirements and environmental protection best practices in this regard.

2.12 Public good and impact on the environment as it relates to climate change

While beyond the scope of the Board's review of the Extension Request, some letters of comment note that the natural gas stored at Alton is primarily intended for the U.S. market and

[18] DFO letter to Alton Natural Gas Storage LP, November 5, 2010.

question the need and benefit of natural gas for the Province. To the contrary, the natural gas in the two storage caverns planned initially at Alton is for the growing number of natural gas customers in Nova Scotia. Additional cavern development to support industrial, commercial and residential expansion will depend on market demand.

The Alton Project will help sustain and grow Nova Scotia's competitiveness, reduce reliance on heavy oil and coal, support energy affordability and increase security of supply during winter peak days. The Project will also help ensure that residential, commercial, and industrial customers can access reasonably priced energy supplies.

Natural gas is used today by a wide range of customers in Nova Scotia including: many of Nova Scotia's largest industries and employers; commercial and manufacturing businesses; the majority of the Province's universities; publicly-funded institutions like hospitals and schools; and thousands of homes. By converting to natural gas, customers in Nova Scotia have collectively saved hundreds of millions of dollars on their energy bills, with further expected savings once the Alton Project is in operation.

The Project will invest more than $130 million in rural Nova Scotia and has invested approximately $70 million to date. Since 2014, more than 70 Nova Scotia companies have provided goods, services and labour to Alton. The first phase of storage service for two caverns, consisting of approximately 4 Bcf of storage, is expected to commence in 2022. The customer for the two caverns is Heritage Gas, the provincial natural gas distributor in Nova Scotia.

2.13 Natural gas pipeline and market ready natural gas

While beyond the scope of the NSUARB's review of this Extension Request, some letters of comment refer to the natural gas pipeline and market ready natural gas. Natural gas will move to and from the facility via a pipeline connected to the Maritimes & Northeast Pipeline system. This pipeline project has been approved, with conditions, via a provincial EA. Contrary to some points raised in letters of comment, Alton is active in meeting its pipeline EA conditions and is in regular contact with provincial regulators in this regard. Detailed design and fieldwork is underway. Alton expects to apply for its Approval to Construct to the Board for the pipeline in the first half of 2019. The pipeline will undergo a safety review before construction can take place and before it can be commissioned for operation.

Only market-ready natural gas (methane) will be stored at the Alton cavern facility. This means that there is no requirement for further processing to remove impurities in the product. In the caverns, the natural gas that will be stored will be in a compressed form, not liquid form (LNG), as some letters suggest.

3.0 Conclusion

Although significant progress has been made on the Project since the Approval to Construct was issued, Alton has faced delays. The in-service date for cavern storage is 2022 and Alton's Extension Request to the NSUARB reflects the need for additional time to complete cavern development.

After extensive expert review, including the detailed review of the Board appointed CA, the Board previously determined that it was appropriate to issue an Approval to Construct, subject to 13 conditions and 28 compliance requirements. Given that Alton is not proposing to alter the substantive conditions attached to the original Approval to Construct, including those that involve the ongoing oversight of the CA, an extension of the Approval to Construct will not have any additional impact on public safety. Alton will continue to meet all conditions imposed as well as all related legal requirements. Alton submits that the Board should grant Alton's Extension Request.

* * *

Appendix 1: Online resources related to the Alton project

- The NSE Environmental Assessment Registry which categorizes the registration documents, and related regulatory decisions, for two EAs: the EA for the Proposed Alton Natural Gas Storage Project (Alton EA (2007), and the EA for the Proposed Alton Natural Gas Pipeline. Both EAs were approved, with conditions, by the Nova Scotia Minister of Environment. The documents include detailed environmental, safety and socio-economic analysis.

- NSUARB website which houses Alton's 2013 Application for its Approval to Construct, related information requests from the CA and Alton's responses, the CA's Certification Report and the Board's subsequent decision to grant the approval, which includes 13 conditions and 28 compliance requirements.

- Letters from the Nova Scotia Minister of Environment which previously dismissed six Appeals of the Industrial Approval issued to Alton to Operate a Brine Pond. The letters address many of the same matters which were raised in the letters of comment on the Extension Request.

- The Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO) website provides information on the KMKNO review of the Alton Project as it relates to the marine environment, which was done on behalf of the Assembly of Nova Scotia Mi'kmaq Chiefs. This included a third-party review by Conestoga Rovers and Associates and a Mi'kmaq Peer Review Committee.

- The Alton website provides extensive resources, including a Frequently Asked Questions section on a range of matters including safety, environment, community engagement and socio-economic matters as well as an Indigenous Relations section. In addition, the website includes links to regulatory documents such as the approved river monitoring plan.

- The Nova Scotia Department of Energy and Mines website provides resources and links to relevant material, including the *Hydrocarbon Storage Act*, the Code of Practice, and FAQs on natural gas storage.

s.19(1)

Paul, Tyra

From: Robichaud, Blake M <Blake.Robichaud@novascotia.ca>
Sent: Friday, January 18, 2019 3:08 PM
To: Tim Church; MacPhail, Helen; McNally, Kelly D; MacKinnon, David S; Cameron, Melanie J; Bird, Michael W; O'Halloran, Bill W; Nikoloyuk, Jordan; Weseloh McKeane, Sean; Bekkers, Kevin F; McLean, Mark G; Dera, Beata E; Rillie, Claire Z; MacKenzie, Tanya L; Johnson, Kathleen; michael.hingston@canada.ca
Cc: [redacted] Cassidy, Sean; Bob Rutherford; Tupper, Ann; [redacted] Roberts, Lorrie A; Gillis, Emily
Subject: RE: Alton Gas One Window
Attachments: Regulators December Jan 15.pdf

Good Afternoon,

Please find attached the slide deck from Tuesday's meeting. Minutes will be circulated early next week.

Thank you,

Blake Robichaud
Policy Analyst

Nova Scotia Department of Business | 1660 Hollis Street | Halifax, NS | 902.478.9063

From: Robichaud, Blake M
Sent: January 16, 2019 4:28 PM
To: Tim Church [redacted] Helen MacPhail (Helen.MacPhail@novascotia.ca) <Helen.MacPhail@novascotia.ca>; McNally, Kelly D <Kelly.McNally@novascotia.ca>; MacKinnon, David S <David.MacKinnon2@novascotia.ca>; Melanie J Cameron (Melanie.Cameron@novascotia.ca) <Melanie.Cameron@novascotia.ca>; Bird, Michael W <Michael.Bird@novascotia.ca>; O'Halloran, Bill W <Bill.OHalloran@novascotia.ca>; Jordan Nikoloyuk (Jordan.Nikoloyuk@novascotia.ca) <Jordan.Nikoloyuk@novascotia.ca>; Sean Weseloh McKeane (Sean.WeselohMcKeane@novascotia.ca) <Sean.WeselohMcKeane@novascotia.ca>; Bekkers, Kevin F <Kevin.Bekkers@novascotia.ca>; 'Mark.McLean@dfo-mpo.gc.ca' <Mark.McLean@dfo-mpo.gc.ca>; Dera, Beata E <Beata.Dera@novascotia.ca>; Rillie, Claire Z <Claire.Rillie@novascotia.ca>; MacKenzie, Tanya L <Tanya.MacKenzie@novascotia.ca>; Johnson, Kathleen <Kathleen.Johnson@novascotia.ca>; michael.hingston@canada.ca
Cc: [redacted] Cassidy, Sean <[redacted] Bob Rutherford [redacted] Tupper, Ann <Ann.Tupper@novascotia.ca>; [redacted] Roberts, Lorrie A <Lorrie.Roberts@novascotia.ca>; Gillis, Emily [redacted]
Subject: RE: Alton Gas One Window

Good Afternoon,

Thank you all for a productive meeting yesterday. Minutes will be circulated in the next week or so. In the meantime, the security item was flagged for an immediate follow-up meeting and Helen has already set this up for next week.

Blake Robichaud
Policy Analyst

Nova Scotia Department of Business | 1660 Hollis Street | Halifax, NS | 902.478.9063

-----Original Appointment-----
From: Robichaud, Blake M
Sent: December 28, 2018 12:44 PM
To: Robichaud, Blake M; Tim Church; Helen MacPhail (Helen.MacPhail@novascotia.ca); McNally, Kelly D; MacKinnon, David S; Melanie J Cameron (Melanie.Cameron@novascotia.ca); Bird, Michael W; O'Halloran, Bill W; Jordan Nikoloyuk (Jordan.Nikoloyuk@novascotia.ca); Sean Weseloh McKeane (Sean.WeselohMcKeane@novascotia.ca); Bekkers, Kevin F; Mark.McLean@dfo-mpo.gc.ca; Dera, Beata E; Rillie, Claire Z; MacKenzie, Tanya L; Johnson, Kathleen; michael.hingston@canada.ca
Cc: [redacted] Cassidy, Sean; Bob Rutherford; Tupper, Ann; [redacted] Roberts, Lorrie A; Gillis, Emily
Subject: Alton Gas One Window
When: January 15, 2019 10:00 AM-12:00 PM (UTC-04:00) Atlantic Time (Canada).
Where: RM-HLFX-CentenialBld-DOB-06FL-Mtg-6D-VC

Good Morning and Happy New Year,

This meeting will take place at the following location:

Room 6D
Nova Scotia Department of Business
6th Floor Centennial Building
1660 Hollis Street, Halifax

There is also an entrance off Granville Street at the corner of Sackville and Granville. Room 6D is off the main hallway from the elevators, at the north end of the building opposite the men's washroom. If you arrive early there is a reception area with seating at the opposite end of the floor. I will circulate conference call information closer to the date.

Blake Robichaud
Policy Analyst

Nova Scotia Department of Business | 1660 Hollis Street | Halifax, NS | 902.424.0909 | 902.478.9063 (c)

Good Afternoon,

We are setting up this 'one window' meeting regarding the Alton Gas project per correspondence from Michael Bird earlier this month. Please let me know if there is anyone else from your department that should be included on this appointment.

Tim, can you also please provide me with the names and emails of any other AltaGas representatives that you would like added to this appointment?

I am waiting for a room to be released and will send an updated appointment with the specific location at that time.

Thank you,

Blake Robichaud
Policy Analyst

Nova Scotia Department of Business | 1660 Hollis Street | Halifax, NS | 902.424.0909 | 902.478.9063 (c)

alton
NATURAL GAS STORAGE L.P.
an **AltaGas** business

Project Update

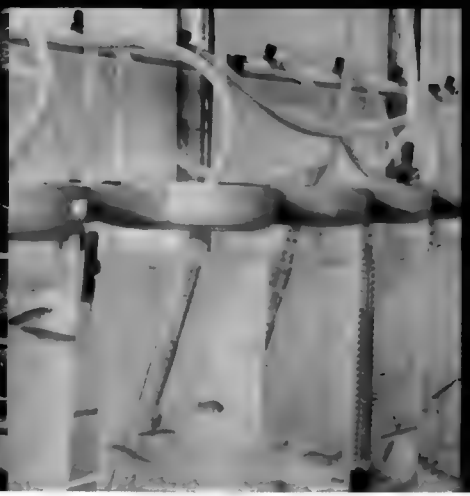
January 15, 2019

Project Update - Agenda

1. General update
2. Estuary
3. Gravity Survey
4. Pipeline
5. Consultation – Office of Aboriginal Affairs
6. Other matters / roundtable discussion

Alton Natural Gas Storage

Alton Natural Gas Storage will help provide Nova Scotians with affordable and reliable natural gas year-round.



Alton Natural Gas Storage Project

alton
NATURAL GAS STORAGE LP
an AltaGas business

Overview

- 2 natural gas storage caverns initially
- Depth of approximately 1,000 m
- Ancient salt formation
- Solution mining process "brining"
- NS has among highest natural gas pricing in North America
- Storage provides consumer savings, helps reduce GHGs, supports renewables
- Will help ensure energy diversity and improve security of supply
- Indigenous partnerships developing
- Storage in-service date of 2022

Examples of Natural Gas Users in Nova Scotia

s.20(1)(c)

NATURAL GAS IN NOVA SCOTIA

Making Things Happen

Economy

$ 347 Million

Added Value (GDP) since 2003

Environment

Annual Carbon Savings Equals

55 wind turbines or 48,000 cars off the road every year

Energy

Since 2003, energy delivered by Heritage Gas has grown to be equal to

22%

of that delivered by Nova Scotia Power

Supply Chain

Purchased goods and services purchased from

591 Nova Scotia businesses

Competitiveness

Heritage Gas provides energy to many of the largest industries and employers in the province

saving our customers millions of dollars relative to other energy choices

Education

Energy for 8 Universities and colleges

with more than **34,000** students, about **80%** of post-secondary students in Nova Scotia

Health

Reliably supplying hospitals

in Halifax, Dartmouth, Amherst and New Glasgow

Customers

Converting a 2000 sq.ft home from heating oil to natural gas, with 4 occupants can reduce carbon emissions by

4 tonnes per year

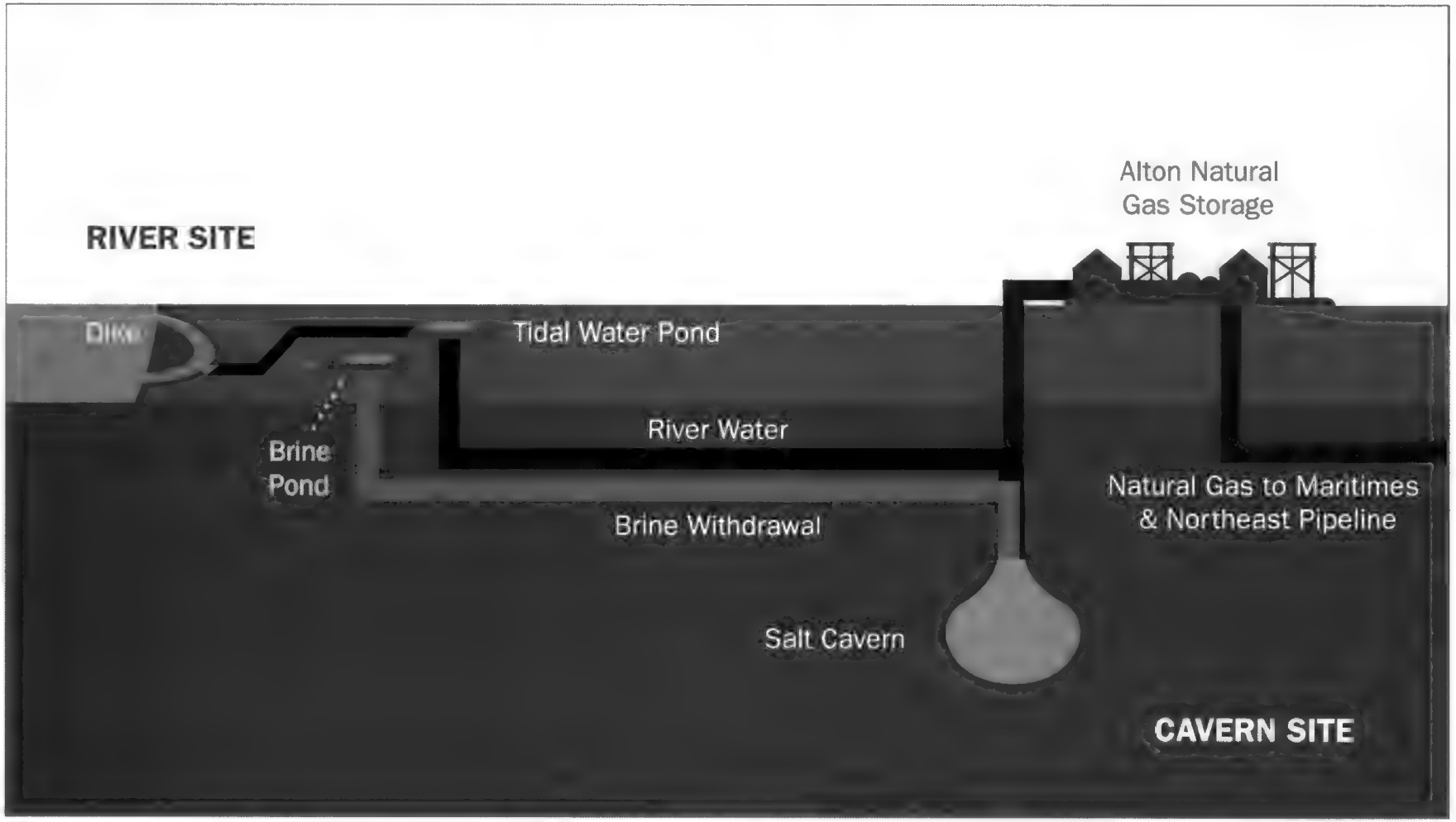
equals every second customer taking a car off the road

Heritage Gas

heritagegas.com

000030

Alton Natural Gas Storage Project

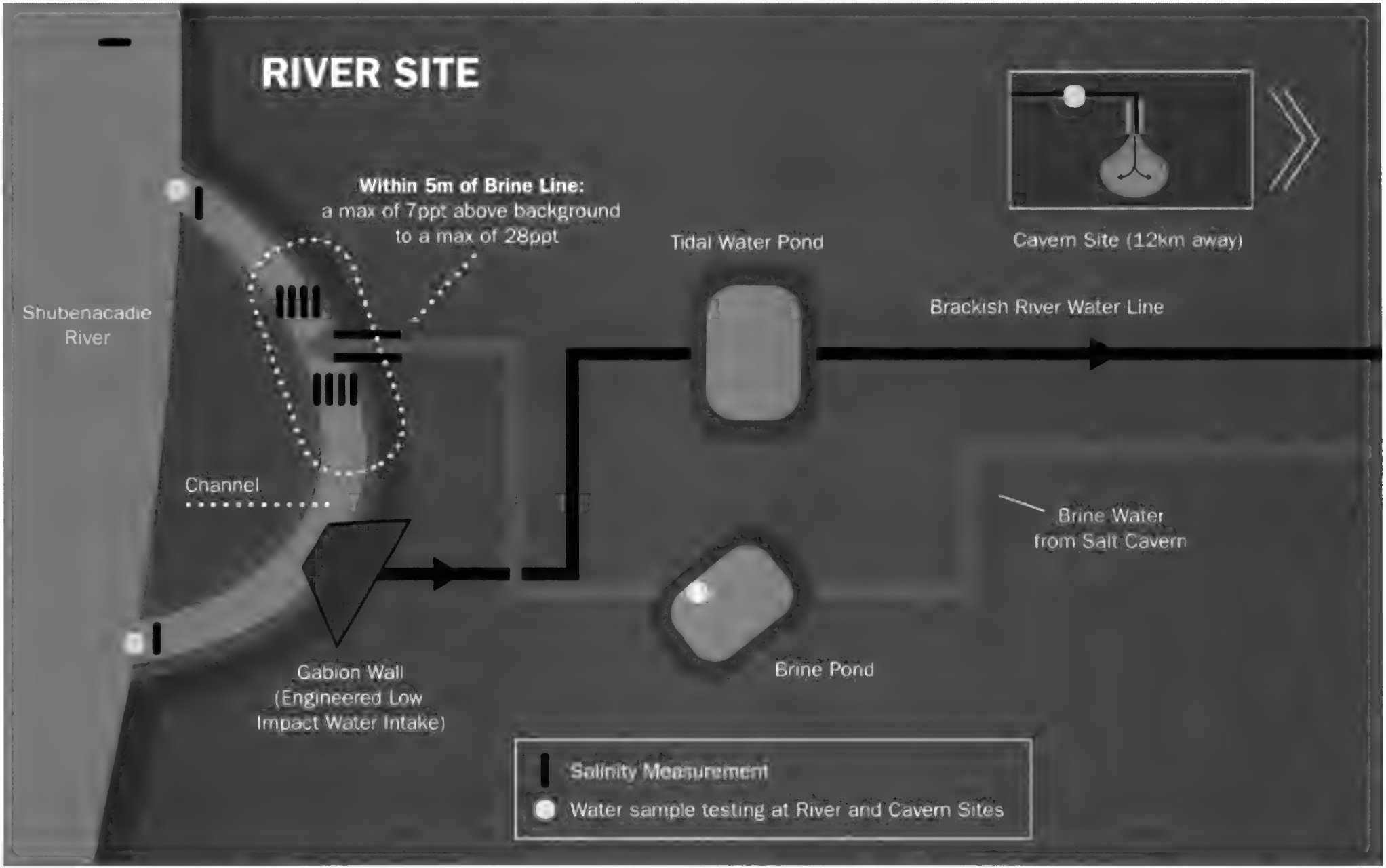


Key components of Alton Natural Gas Storage Project

- River site
- Natural Gas Storage Cavern
- Natural Gas Pipeline to Maritimes & Northeast Pipeline

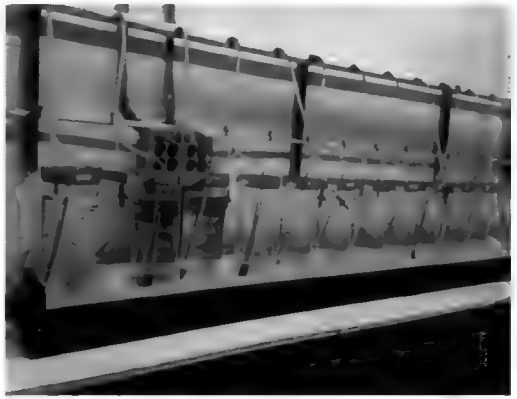
River site

Monitoring points



Toxicity testing

- Approved toxicity testing protocol
  - 2016-18 at Dalhousie University laboratory
- Confirms Striped Bass are highly tolerant to salinity
- 1 hour LC_{50} was 58.4ppt for yolk-sac larvae, 40.6 ppt for 5-10 days post hatch (dph) larvae, 48.4 dph larvae, 52.5ppt for early juveniles (20-60 mm for length, fl) and 58.4 ppt for juveniles (120mm FL).
  - *Report on Methodology development for hyper-saline toxicity tests on Striped Bass (Morone saxatilis) 2016/2017, July: 2018, Dalhousie University*



Proposed fish barrier concept

Screened fish barrier with aeration provides another layer of protection

- Completely encases the brine release area in the channel
  - Allows mixing to take place without presence of fish

Pages 36 to / à 37

are withheld pursuant to section

sont retenues en vertu de l'article

20(1)(c)

of the Access to Information Act

de la Loi sur l'accès à l'information

Gravity Survey vs Drilling and Seismic

Drilling wells give us the best subsurface information

- very expensive
- in storage projects they can become a liability
- locations affect cavern spacing requirements

Seismic

- very expensive
- somewhat intrusive, (cutting lines, drilling blast holes, blasting)
- interpretive

Gravity

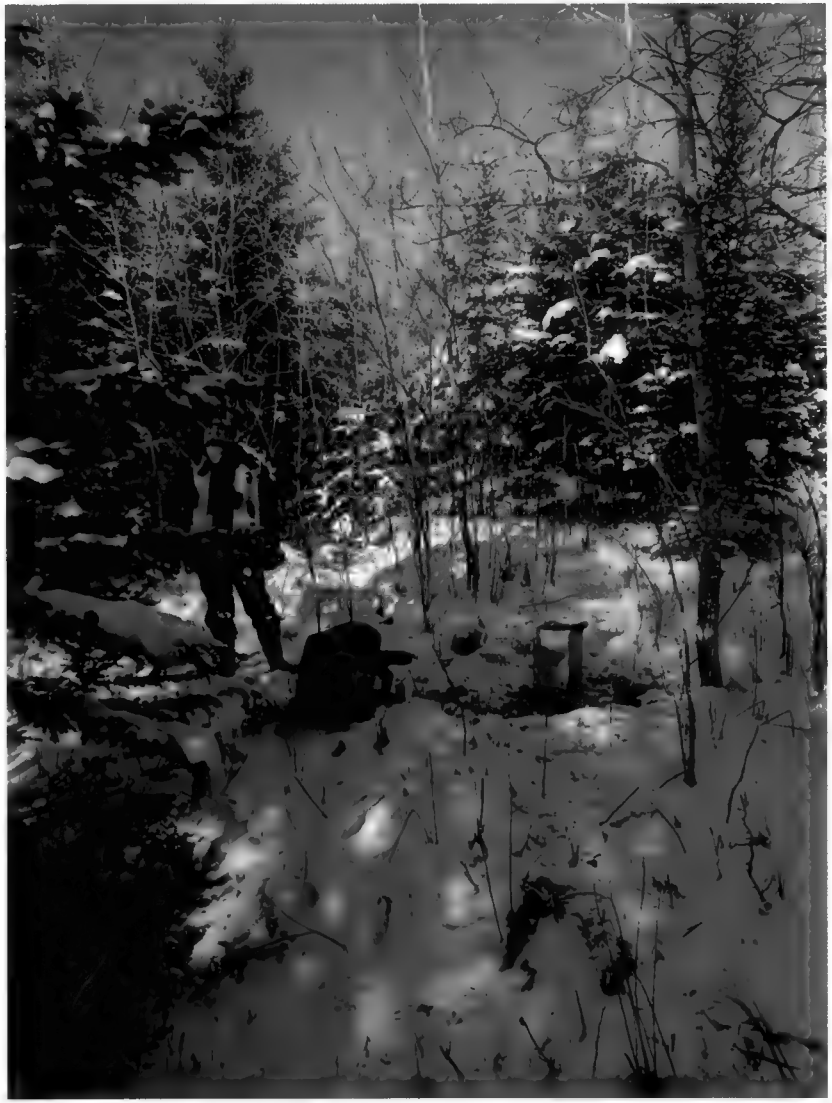
- inexpensive compared to seismic and drilling
- unintrusive, (no cutting or disturbance required)
- also interpretive but raw data can be calibrated

Gravimeter

Survey Basics

- Survey is tied into existing gravity monuments
- All readings are time stamped
- Apply tide state into gravity readings
- Produces raw gravity data at each station

Field Operations



Field Operations

- Need accurate elevation information
- Sophisticated GPS equipment
- Equipment is delicate
- Average of 15 stations per day at 200 m spacing

Pages 41 to / à 43

are withheld pursuant to section

sont retenues en vertu de l'article

20(1)(c)

of the Access to Information Act

de la Loi sur l'accès à l'information

Paul, Tyra

From: MacPhail, Helen <Helen.MacPhail@novascotia.ca>
Sent: Wednesday, February 6, 2019 9:31 AM
To: Robichaud, Blake M; McNally, Kelly D; MacKinnon, David S; Cameron, Melanie J; Bird, Michael W; O'Halloran, Bill W; Nikoloyuk, Jordan; Weseloh McKeane, Sean; Bekkers, Kevin F; McLean, Mark G; Dera, Beata E; Rillie, Claire Z; MacKenzie, Tanya L; Johnson, Kathleen; michael.hingston@canada.ca; Milton, Randy Gordon
Subject: FW: Alton Natural Gas Storage - RR#2 Environmental Report, EA Condition 1.2
Attachments: 190204_Alton _ReRoute2_SummaryRpt.pdf

Follow Up Flag: Follow up
Due By: Friday, February 15, 2019 8:00 AM
Flag Status: Flagged

Hello All,

Here is the Re-Route #2 Environmental Screening Report for your review and comment to determine if potential environmental effects can be addressed through the existing EA conditions, Part V Approvals (Env. Act) and other permits.

Please respond by Feb 15, 2019 – or let me know if this is not possible.

Thank you,
Helen

From: Bishop, Ivan
Sent: Monday, February 04, 2019 2:34 PM
To: MacPhail, Helen <Helen.MacPhail@novascotia.ca>
Cc: Tim Church Tanya Stefanishion Alton (Cassidy, Sean Gillis, Emily <
Subject: Alton Natural Gas Storage - RR#2 Environmental Report, EA Condition 1.2

Hi Helen

Please see attached Re-Route #2 Environmental Screening Report for distribution as required.

We trust the foregoing is satisfactory and please feel free to contact us if you have any questions or comments.

Thanks,
Ivan

Ivan J. Bishop
Field Supervisor, Engineering

WSP Canada Inc.
1 Spectacle Lake Drive
Dartmouth, Nova Scotia B3B 1X7 Canada
C - [redacted]
T +1 902-835-9955
F +1 902-835-1645

www.wspgroup.com

Please consider the environment before printing...

ALTON NATURAL GAS STORAGE PIPELINE PROJECT: PROPOSED RE-ALIGNMENT

RE-ROUTE #2: ENVIRONMENTAL SCREENING

ALTON NATURAL GAS STORAGE LP

FEBRUARY, 2019

wsp

ALTON NATURAL GAS STORAGE PIPELINE PROJECT: PROPOSED RE-ALIGNMENT

RE-ROUTE #2 ENVIRONMENTAL SCREENING

ALTON NATURAL GAS STORAGE LP

WSP PROJECT NO.: 111-26678
DATE: FEBRUARY, 2019

WSP
1 SPECTACLE LAKE DRIVE
DARTMOUTH, NS, CANADA B3B 1X7

T +1 902-935-9955
F +1 902-835-1645
WSP.COM

February 4, 2019

Alton Natural Gas Storage LP

Dear Tim:

Subject: **Proposed Re-Alignment #2: Environmental Screening (November 2018), Alton Natural Gas Storage Pipeline Project**

This letter report outlines the findings of our field work completed along the proposed re-alignment section of the Alton Gas Line (Re-Route #2), in response to a request to avoid the property and re-route the pipeline within Crown Land property (PID 20459194).

Yours sincerely,

Sean Cassidy, P.Eng.
Director - Atlantic Environment

cc:

WSP ref.: 111-26678

1 Spectacle Lake Drive
Dartmouth, NS, Canada B3B 1X7

T: +1 902-835-9955
F: +1 902-835-1645
wsp com

SIGNATURES

PREPARED BY

Emily Gillis, EP
Environmental Technologist

REVIEWED BY

Sean Cassidy, P.Eng.
Director Atlantic Environment

This report was prepared by WSP for the account of Alton Natural Gas Storage LP, in accordance with the professional services agreement. The disclosure of any information contained in this report is the sole responsibility of the intended recipient. The material in it reflects WSP's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This limitations statement is considered part of this report.

The original of the technology-based document sent herewith has been authenticated and will be retained by WSP for a minimum of ten years. Since the file transmitted is now out of WSP's control and its integrity can no longer be ensured, no guarantee may be given with regards to any modifications made to this document.

TABLE OF CONTENTS

TABLES

APPENDICES

1 INTRODUCTION

WSP Canada Inc. (WSP) was retained by Alton Natural Gas Storage LP (Alton) to review re-alignment options for a section of the proposed gas pipeline route (approximately 1.75 - 1.87 km) known as Re-Route #2, located north of Stewiacke Road and east of Stewiacke, Nova Scotia. A new alignment is required in this area to comply with a request from the landowner (of to avoid his property. WSP was tasked with evaluating potential re-alignment options to satisfy the following objectives:

- Avoid present routing in general area of
- Minimize impacts to the environment by avoiding wetlands and watercourses, where possible; and
- Minimize impacts to the project costs by seeking the shortest route.

Figures 1 and 2 are included in Appendix A to illustrate key features of the pipeline right of way right-of-way (ROW) in this area. The following sections of the report provide details of the recent ecological surveys completed along various proposed re-alignments options.

2 FIELD ASSESSMENTS

Preliminary reconnaissance of the proposed gas pipeline route (Re-Route #2) was completed by WSP on November 20th and November 21st, 2018. Various re-alignment routes were walked within 50 metres either side of the centreline to ensure maximum coverage for the identification of environmental features such as wetlands and watercourses. Environmental features were identifiable, however there was minor snow cover on the ground on both survey dates.

Detailed ecological surveys were not conducted during this assessment and are recommended for June/July 2019 along the final re-alignment route. The recommended detailed ecological surveys are outlined in the recommendation section below.

2.1 WETLANDS

Wetland ecological surveys were conducted along various proposed re-alignment options in November, 2018. The presence/absence of wetlands was evaluated in accordance with the U.S. Army Corps of Engineers Wetlands Delineation Manual and the Northcentral and Northeastern Interim Regional Supplement (January, 2012). During the field work the proposed re-alignment routes were searched for areas showing typical wetland characteristics, in particular the existing wetland boundaries near the re-alignments. The vegetation, soil and hydrology of potential wetland areas were assessed in order to determine whether or not the conditions present constitute a wetland. When a wetland was identified a boundary determination was made, the position of this boundary was recorded using a Differential GPS unit. General notes on the type and features of the wetland were collected as well as representative photographs.

A total of nine wetland areas (mapped and unmapped) were identified during the survey. Figure 2, included in Appendix A, shows the wetland areas that were field identified and delineated (WSP, Nov 2018). WSP biologists determined that WL 21 and WL16 are larger than previously mapped by Stantec Consulting Ltd in 2011. WL 21 extends further to the east, and WL16 extends further to the north with a small watercourse exiting the wetland. Two mapped NSDNR wetlands were identified, one of which was re-delineated by WSP (WL 33). This re-delineated mapped wetland (WL33) has a small watercourse (WC 11) exiting the wetland and flowing eastwardly.

2.2 WATERCOURSES

Two watercourses were observed to cross the proposed re-alignment (Re-Route #2) during WSP's ecological survey. The location of the field identified watercourses (WC10 and WC11) are presented on Figure 2. These watercourses flow in well-defined channels, and are likely to be permanent watercourses based on the flow observed during the site visit.

3 REVIEW OF OPTIONS

Various re-alignment options of the Alton Natural Gas Pipeline have been considered to avoid [redacted]. The original route and proposed final version of Re-Route #2 are shown on Figure 1 & 2, Appendix A. A route comparison is presented in Table 3.1 and discussed below.

Table 3.1: Comparison of Re-Alignment Options

ATTRIBUTE	ORIGINAL ROUTE	RE-ROUTE 2
Length of Pipeline (km)	1.6	1.9
No. of Direct Wetland Crossings	4*	1
Approx. Length of Wetland Crossings (m)	55.0*	40.0
No. of Watercourse Crossings	1 (WC8)	2 (WC10 and WC11)

* WL21 observed to be larger than area mapped by Stantec and crosses original layout. Unsure of exact extent.

The recommended re-alignment route avoids [redacted] (private property), and is located exclusively on Crown Land. As shown in Table 3.1, and Figure 1 & 2, Re-Route #2 is longer than the Original 2011 ROW, however the route avoids the most wetlands and crosses the least amount of direct wetland area. It should be noted that the field identified wetlands (WL16, WL21, WL31, WL33, WL34, WL35 and WL 36) have the potential to be indirectly affected by the Re-Route #2 alignment (i.e. are within 30m of the ROW).

WSP recommends the Re-Route #2 alignment based on the following considerations:

- The route avoids property [redacted]
- The route avoids most of the field identified wetlands; and
- The route directly crosses the least amount of wetland area.

4 RECOMMENDATIONS

As indicated above, detailed ecological surveys were not conducted during this assessment and are recommended for June/July 2019 along the final re-alignment route. The detailed ecological surveys will include the following:

- Fish habitat characterization (if applicable) and water quality data collection that will be required as part of the provincial watercourse alteration approval process;
- Flora and Fauna surveys to identify any plants that may be listed in the Nova Scotia Endangered Species Act;
- Baseline monitoring, including installation of wetland plots at wetlands along the ROW (if within 30m of the centreline) to monitor any potential direct or indirect impacts to the wetlands during pipeline construction;
- A functional assessment for WL 32, as well as verify the wetland boundary as it may be connected the adjacent DNR mapped wetland;
- Breeding bird survey(s) along the proposed re-alignment route.

5 CLOSURE

This report has been prepared for the sole benefit of Alton Natural Gas Storage LP. Any other person or entity may not rely on this report without the express written consent of WSP and Alton. WSP accepts no responsibility for damages suffered by any third party as a result of decisions made, or actions conducted based on this report. No other warranties are implied or expressed. This report has been prepared by Christina LaFlamme, M.Sc., EP., former Senior Biologist and Emily Gillis, EP, and was reviewed by Sean Cassidy, P.Eng.

The findings presented in this report are based on field observations made from November 20th and November 21st, 2018. These results rely on conditions identified during the site visits which may alter over time. Technical limitations associated with the report can be found in Appendix B.

We trust that this report meets your requirements at this time. If there are any questions, do not hesitate to contact our office.

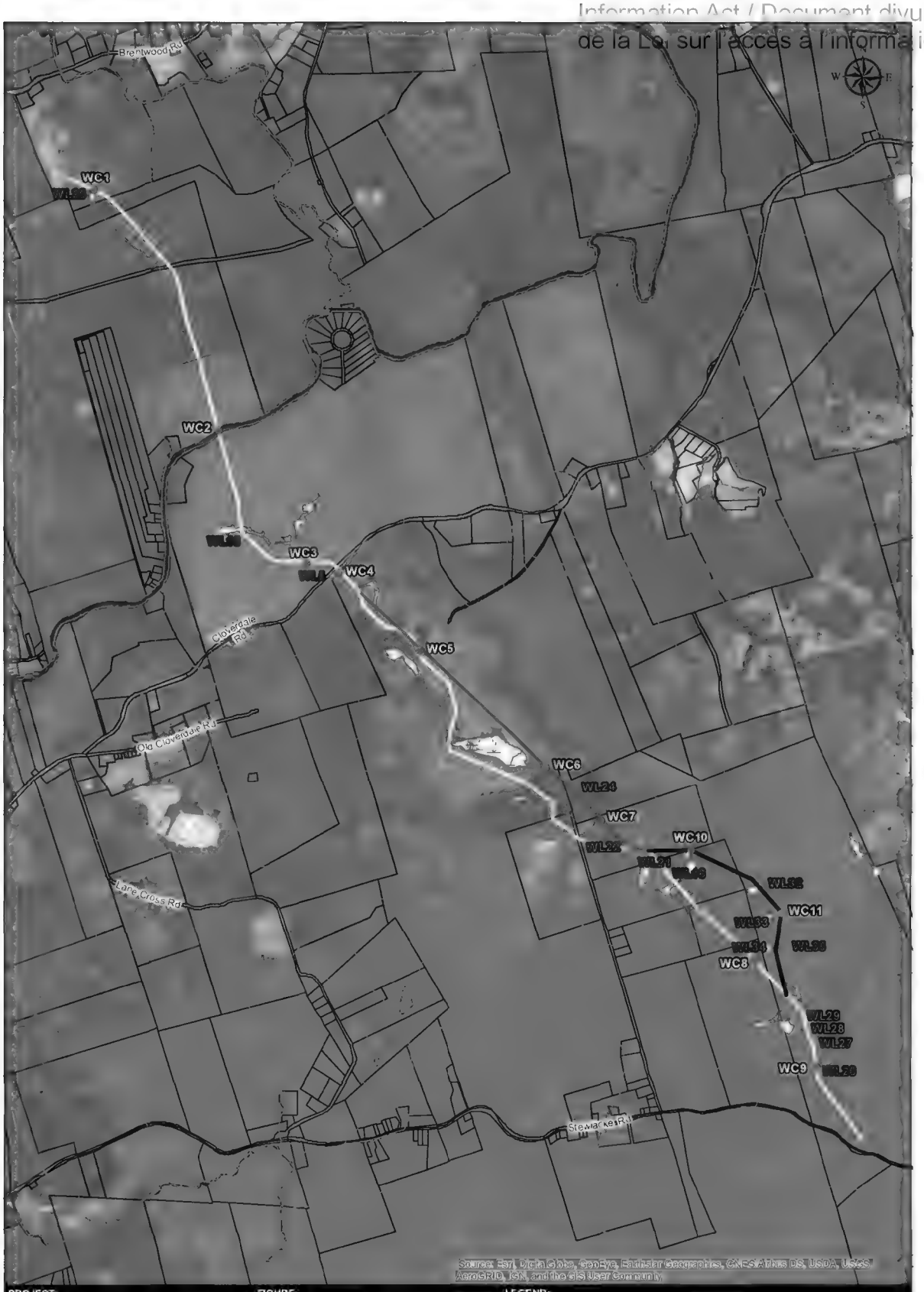
Yours truly,

WSP Canada Inc.

Sean Cassidy, P.Eng.
Director - Atlantic Environment

APPENDIX

A FIGURES



PROJECT:

PROJECT: ALTON NATURAL GAS STORAGE: PIPELINE ALIGNMENT

PROJECT NO.: 111-26678

CLIENT: alton

WSP Canada Inc.
1 Spectacle Lake Drive
Dartmouth, Nova Scotia
www.wsp.com

FIGURE:

TITLE: OVERVIEW
NATURAL GAS PIPELINE ALIGNMENT & FIELD IDENTIFIED WETLAND & WATERCOURSES

FIGURE NO: 1

REVISION NO.: 0

SCALE: 1:25,000
0 250 500 1,000 1,500 Metres

DATUM: NAD 83 CSRS

PROJECTION: UTM ZONE 20 NORTH

DRAWN BY: T. MOREHOUSE

CHECKED BY: E. GILLIS

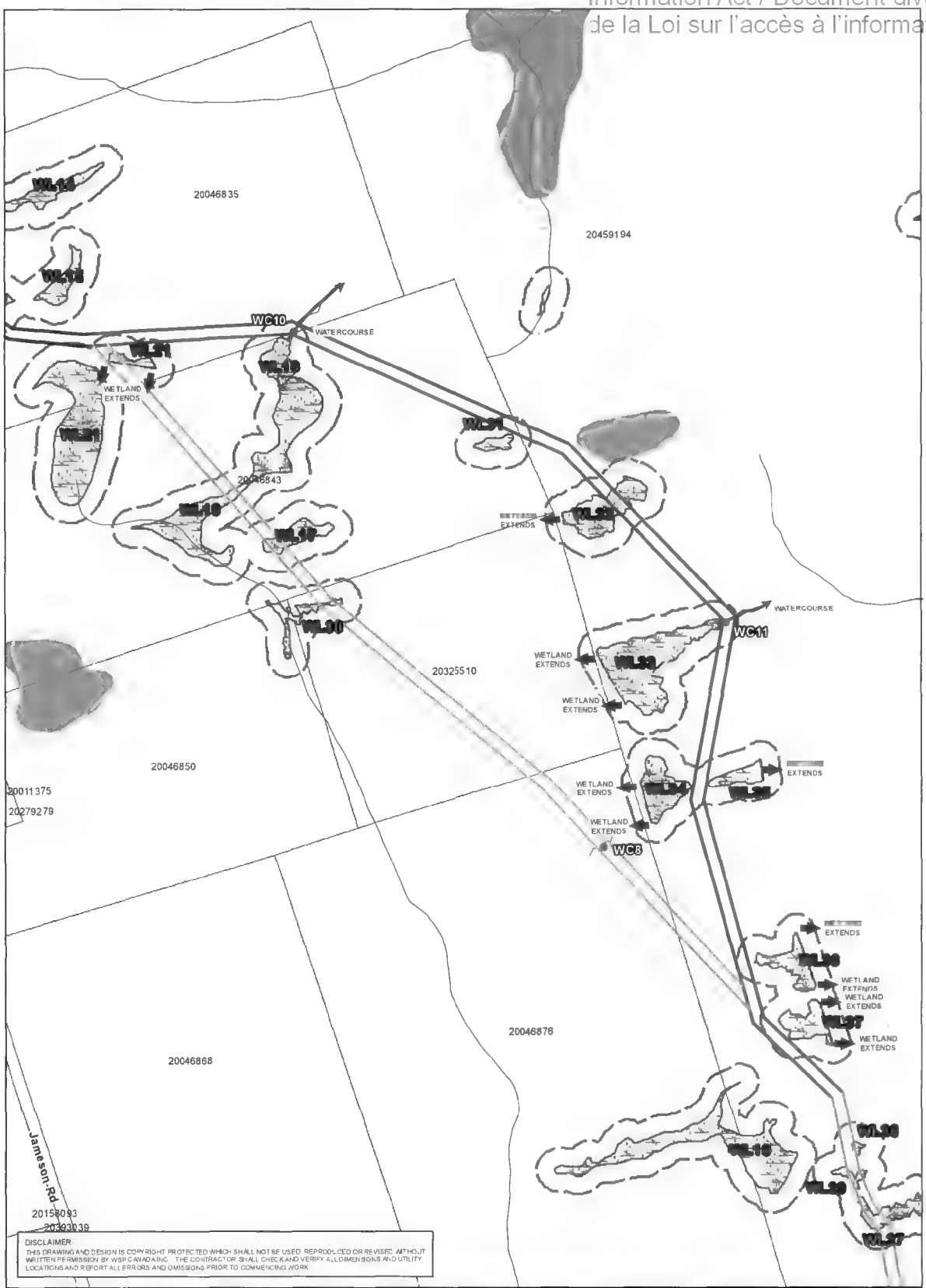
CREATED DATE (YYYY-MM-DD): 2019-01-09

REVISION DATE (YYYY-MM-DD): 2019-01-16

LEGEND:

- WATERCOURSE CROSSINGS
- WATERCOURSE
- NATURAL GAS ALIGNMENT (RE-ROUTE #2)
- NATURAL GAS ALIGNMENT (RE-ROUTE #1)
- NATURAL GAS ALIGNMENT (ORIGINAL ALIGNMENT)
- STEWIACKE WATERSHED PROTECTED WATER AREA
- PROPOSED STEWIACKE RIVER WILDERNESS AREA
- NS DNR WETLANDS (2015)
- DELINEATED WETLANDS
- PROPERTY BOUNDARIES

Document Path: S:\GIS\2_PROJECTS\2011\111_26678_AltaGas_NaturalGasPipeline_NS\6_MXD\20190109_111_26678_AltonGas_FIG01_OverviewReRoute2.mxd



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PROJECT:

PROJECT: ALTON NATURAL GAS STORAGE: PIPELINE ALIGNMENT

PROJECT NO.: 111-26678

CLIENT: alton

WSP Canada Inc.
1 Spectacle Lake Drive
Dartmouth, Nova Scotia
www.wsp.com

FIGURE:

TITLE: NATURAL GAS PIPELINE ALIGNMENT: WETLAND DELINEATION & PROPOSED RE-ROUTE #2

FIGURE NO.: 2

REVISION NO.: 0

SCALE: 1:6,000
0 20 40 80 120 160 200 240 Metres

DATUM: NAD 83 CSRS

PROJECTION: UTM ZONE 20 NORTH

DRAWN BY: T.MOREHOUSE

CHECKED BY: E. GILLIS

CREATED DATE (YYYY-MM-DD): 2019-01-09

REVISION DATE (YYYY-MM-DD): 2019-01-29

LEGEND:

- WATERCOURSE CROSSINGS
- WATERCOURSE
- DELINEATED WETLANDS
- EXTENT OF WETLAND DELINEATION *(wetland continues beyond this point)*
- DELINEATED WETLAND (BUFFER 30 METRES)
- NS DNR WETLANDS (2015)
- PROPERTY BOUNDARIES
- NATURAL GAS ALIGNMENT (ORIGINAL ALIGNMENT - 20m ROW)
- NATURAL GAS ALIGNMENT (RE-ROUTE #1 - 20m ROW)
- NATURAL GAS ALIGNMENT (RE-ROUTE #2 - 20m ROW)

N W E S

Document Path: S:\GIS\2_PROJECTS\2011\111_26678_AltaGas_NaturalGasPipeline_NS\8_MXD\20190127_111_26678_AltonGas_FIG02_NGPipelineAlignment_FINAL.mxd

Paul, Tyra

From: McLean, Mark G
Sent: Monday, March 4, 2019 3:45 PM
To: King, Rhea L
Cc: Penney, Marcia Y; Cox, Christy
Subject: RE: Alton Gas - DFO holding lines
Attachments: ML_Alton Natural Gas March 4-2019 Draft.doc

I've attached some updated media lines for review. Let me know if you have any questions.

Mark

From: King, Rhea L <Rhea.King@dfo-mpo.gc.ca>
Sent: Friday, March 1, 2019 10:01 AM
To: McLean, Mark G <Mark.McLean@dfo-mpo.gc.ca>
Cc: Penney, Marcia Y <Marcia.Penney@dfo-mpo.gc.ca>; Cox, Christy <Christy.Cox@dfo-mpo.gc.ca>
Subject: Alton Gas - DFO holding lines

Hi Mark,

Can you pls dust off the holding lines and add a line or two to address the updates within the article below related to the FA (ECCC implications)?

Thanks,
Rhea

Ottawa to regulate protested Alton Gas cavern plan in N.S

Calgary Herald

By/Par: Michael Macdonald
Date: 2019.03.01
Page: A6
Words/mots: 694

The federal government is stepping in to regulate a controversial plan by a subsidiary of Calgary-based AltaGas to use **water** from one of Nova Scotia's major rivers to create huge underground caverns to store natural gas, but a **Mi'kmaq** leader says the move doesn't go far enough.

Environment and **Climate Change** Canada says the proposed regulations for the Alton Gas project will be aimed at managing potential threats to **fish**, **fish habitat** and human health.

However, **Millbrook** First Nation Chief Bob Gloade said it appears the department has already decided to grant the company an exemption to a provision in the **Fisheries Act** that bans depositing so-called "**deleterious substances**" into waterways frequented by**fish**.

"It seems like it's just a quick approach to rubber-stamp this without proper engagement, consultation and evaluation of the implications of this," Gloade said in an interview Thursday. "It's to accommodate one company's ability to move forward on a particular project."

Federal officials could not be reached for comment, but the company issued a statement saying it is committed to safe operations that will protect the **Shubenacadie River**.

"As designed and operated, we are confident that Alton will not have an impact on **fish** or **fish habitat** in the **Shubenacadie**estuary," the company said.

For the past 12 years, Alton Gas has been planning to pump**water** from the **river** to an underground site 12 kilometres away, where it will be used to flush out salt deposits, creating up to 15 caverns.

The leftover brine solution would then be pumped back into the**river** over a two-to three-year period.

The project has been on hold since protests started in 2014, and a protest camp was set up near the **river** two years later.

A protester at the camp declined to comment when reached Thursday. Calls to other protest leaders and members of the nearby Sipekne'katik First Nation were not returned.

However, Gloade made it clear he's worried the project will damage the 73-kilometre tidal **river**, which runs through the middle of mainland Nova Scotia.

"They are giving them the goahead to do it without knowing ... that the salinity content is not going to raise above a certain point," he said. "This is not something that has happened before, so they can't give any assurance that it's not going to cause any harm."

Alton Gas says it has scientific studies showing the brine will not hurt the **environment**.

"Brine release at Alton has been extensively studied, both during the project's provincial **environmental assessment** and the independent review led by the **Mi'kmaq** - the recommendations from which we are fully committed to implementing.

"That being said, we appreciate that some people continue to have questions about the brine release process. We continue to engage with project stakeholders with respect to questions they may have, and we are open to the development of the new regulation by**Environment** and **Climate Change** Canada."

The federal department says regulations under the **Fisheries Act**, due later this year, will establish "conditions on any brine releases."

"The project is designed to ensure that the salt concentration ... (in) the **river** would not exceed the highest naturally occurring salt concentrations in the **river**," the department said in a notice of intent posted Monday on its website.

"The objective of the regulations under consideration is to manage the risk of potential threats to **fish**, **fish habitat** and human health from **fish** consumption."

Last Friday, Alton Gas applied to the Supreme Court of Nova Scotia for an injunction that would order the removal of protesters from the riverside site near Fort Ellis, N.S.

The company says it wants the RCMP to remove "trespassing" protesters who have "consistently" blocked access to the site.

The company has insisted it has consulted with local Indigenous people, and the provincial government has agreed.

More importantly, the company says it has already secured the permits it needs to start pumping **water** from the **river**.

But the delays are adding up. The company had initially planned to have construction completed between 2013 and 2018. However, the company recently asked the Nova Scotia Utility and Review Board to extend its cavern construction permit to Sept. 1, 2023.

Close

DRAFT

Media Lines

Alton Natural Gas Storage Project

Issue:

During the Aboriginal Consultations undertaken by the Province of Nova Scotia on the Alton Natural Gas Underground Storage Project, the Assembly of Nova Scotia Mi'kmaq and Sipekne'katik First Nation have raised significant concerns with the project, specifically around potential impacts to fish and fish habitat from the release of brine solution into the Shubenacadie River. The Assembly of Nova Scotia Mi'kmaq and Sipekne'katik First Nation have also stated the DFO should have consulted on the project even though there were no approvals required by DFO.

The project is located just north of Stewiacke, Nova Scotia in the community of Alton. It involves the development of underground natural gas storage facilities through the use of solution mining of natural salt deposits to create underground caverns. To build the caverns, water will be taken from the tidal section of the Shubenacadie River and pumped into the salt deposits and then the brine water would be returned to the river. Nova Scotia Environment (NSE) issued an environment assessment approval for the project in 2007. DFO's role in the process was to provide expert advice to NSE and has determined that a *Fisheries Act* authorization would not be required as the project would not result in Serious Harm to fish as defined under the Act.

Under Section 36(3) of the *Fisheries Act*, Environment and Climate Change Canada regulates the release of deleterious substances such as brine water and is therefore the lead federal regulator. DFO would be responsible to ensure there are no impacts to the inner Bay of Fundy Atlantic salmon population as they are listed as endangered under the *Species at Risk Act* and use the Shubenacadie River to migrate to spawning grounds on the Stewiacke River.

Media lines:

- Fisheries and Oceans Canada (DFO) participated in the review of the Alton Gas Project by providing expert advice to Nova Scotia Environment on issues such as fish and fish habitat.

- The release of brine is regulated under Section 36(3) of the *Fisheries Act* which prohibits the release of deleterious substances into waters frequented by fish. Environment and Climate Change Canada is responsible for this section of the Act.

If Pressed:

Fisheries and Oceans Canada reviewed the project under the provisions of its mandate and determined that neither a *Fisheries Act* authorization nor a *Species at Risk Permit* would not be required because the project would not result in serious harm to fish or impacts to inner Bay of Fundy Atlantic salmon.

Fisheries and Oceans Canada, as a condition under the Nova Scotia Environmental Assessment Approval, reviewed Alton Gas's monitoring plans and are satisfied the plans will address concerns outlined in the DFO Science Response (http://publications.gc.ca/site/eng/398752/publication.html).

Fisheries and Oceans Canada's expert advice included recommended mitigation measures to avoid impacts to egg and larva stages of Striped bass as well as avoidance of impacts to the inner Bay of Fundy Atlantic salmon population.

If pressed about brine water

For questions regarding water quality please contact Environment Canada's Regional Manager for Enforcement, Dave Wood at 902-426-4491.

Spokesperson:

Program Contact:

Mark McLean, Manager, Regulatory Reviews – Ecosystem Management
902-802-0740

Communications Contact:

Alexandra McNab, A/Communications Advisor, Maritimes Regions
901-448-4791

McLean, Mark G

From: Reynolds, Craig
Sent: Tuesday, April 9, 2019 2:12 PM
To: helen.MacPhail@novascotia.ca
Cc: McLean, Mark G; Levy, Alex L; Delaney, Leanda
Subject: FW: Alton Gas Pipeline Update

Importance: High

Helen,

Thank you for the opportunity to review the document. Our understanding is that the Focus of the EMP is for the construction of the natural gas pipeline and associated Right-of-Way (RoW) that has been proposed for the Alton Natural Gas Storage Project. The EMP describes the measures to mitigate potential adverse environmental effects resulting from the clearing and grubbing of the pipeline RoW, installation of the natural gas pipeline and operation of the pipeline. Overall the EMP appears to satisfy the condition in the EA approval.

With regards to potential impacts to fish and fish habitat, there are 9 pipeline watercourse crossing that will be dry crossings using dam and pump technique. The EMP references standard freshwater in-water work mitigation measures, known and accepted by DFO. Crossing of the Stewiacke River is anticipated to be a trenchless crossing (i.e., Horizontal Directional Drilling (HDD)) which should reduce the potential for any adverse effects to fish and fish habitat. It is our understanding that prior to working near/within watercourse crossings, Alton will submit a Watercourse Alteration Application to NSE for Approval and that specific details regarding each watercourse crossing will be included in the application.

As part of our regulatory partnership with NSE, DFO will use that opportunity to review the watercourse alteration application to assess the specific impacts of the project on fish and fish habitat. Provided that all measures outlined in the EMP are followed, DFO's advice is that the proposed plans for dry crossing the 9 watercourses and the plan to horizontally directionally drill under the Stewiacke River, will not likely result in serious harm to fish. The Stewiacke River watershed is identified as containing freshwater critical habitat for Atlantic salmon (Inner Bay of Fundy Population), listed as Endangered under the *Species at Risk Act.* However given the mitigation measures contained in the EMP impacts are not likely to affect the listed species. No formal approval will likely be required from DFO under the Fisheries Act or Species at Risk Act . If the plans change, the proponent should consult our website (http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html) or consult with a qualified environmental consultant to determine if further review is required by DFO.

Sincerely,

Craig Reynolds
Regulatory Reviews Biologist, Ecosystems Management
Fisheries and Oceans Canada
PO Box 1006, Dartmouth, NS B2Y 4A2
Telephone 902-789-5832
Craig.Reynolds@dfo-mpo.gc.ca

From: MacPhail, Helen <Helen.MacPhail@novascotia.ca>
Sent: Tuesday, April 2, 2019 10:46 AM

To: McNally, Kelly D <Kelly.McNally@novascotia.ca>; MacKinnon, David S <David.MacKinnon2@novascotia.ca>; Cameron, Melanie J <Melanie.Cameron@novascotia.ca>; Bird, Michael W <Michael.Bird@novascotia.ca>; O'Halloran, Bill W <Bill.OHalloran@novascotia.ca>; Bekkers, Kevin F <Kevin.Bekkers@novascotia.ca>; Dera, Beata E <Beata.Dera@novascotia.ca>; Rillie, Claire Z <Claire.Rillie@novascotia.ca>; MacKenzie, Tanya L <Tanya.MacKenzie@novascotia.ca>; Johnson, Kathleen <Kathleen.Johnson@novascotia.ca>; michael.hingston@canada.ca; Cassidy, Sean <Sean.Cassidy@wsp.com>; Tupper, Ann <Ann.Tupper@novascotia.ca>; Roberts, Lorrie A <Lorrie.Roberts@novascotia.ca>; Robichaud, Blake M <Blake.Robichaud@novascotia.ca>; Nikoloyuk, Jordan <Jordan.Nikoloyuk@novascotia.ca>; Weseloh McKeane, Sean <Sean.WeselohMcKeane@novascotia.ca>; McLean, Mark G <Mark.McLean@dfo-mpo.gc.ca>
Cc: Bowen, Lynn A <Lynn.Bowen@novascotia.ca>
Subject: Alton Gas Pipeline Update
Importance: High

Hello All,

Last week I met with Tim Church and Ivan Bishop. The company is wanting to move forward with some ground survey related tasks (hand cutting parts of center line), the bathometric survey of the Stewiacke River and obtaining their regulatory permissions. The following are several items I have identified that need to be worked on:

Review EMP – this has been sent to NSE's Truro Office for review who will also share it with DFO. L&F, CWS, CCH and OAA should also review this document. Comments back by April 9, 2019, if possible.(link to document below).

Regulatory permissions need to be in place.

Need to discuss security and compensation.

Response on Revised Route 2 needs to be sent.

Need discussion regarding consultation with Mi'kmaq.

Thank you,
Helen

Hello Helen,

Please see below for access to a FTP site containing the Environmental Management Plan (EMP), including the Environmental Protection Plan (EPP) and Emergency Response and Contingency Plans related to the Alton Natural Gas Storage Pipeline Project. As you are aware, the EMP is a meant to be a living document and will be updated and re-circulated as the Project evolves and more information becomes available (i.e. results from additional field studies/assessments that are required along the proposed pipeline re-alignments Re-Route #1 and #2).

Please distribute accordingly for review and let us know if you have questions or concerns.

Kind Regards,
Emily

Emily Gillis, EP
Environmental Technologist
Environment | Atlantic

D+ [redacted]
M+ [redacted]

1 Spectacle Lake Drive
Dartmouth, Nova Scotia
B3B 1X7 Canada

wsp.com

FTP Site below:

Your credentials:

Username [redacted]
Password:

Simple access via Web Browser:
[redacted]

Access with FTP client via port 22 :
[redacted]

The login above will expire on 2019-04-06 00:00:00 , the site and all its data are deleted automatically after it expires.
No backups are done of the FTP server. Keep a copy of your data to avoid any inconvenience.
Contact us at 1-855-977-4873 or by email at ITCanada-ServiceDesk@wspgroup.com for modification of the site.

by WSP qualify as commercial electronic messages

Head from Sean W-M

ENVIRONMENTAL MANAGEMENT PLAN FOR THE ALTON NATURAL GAS STORAGE PIPELINE

CONSTRUCTION, OPERATION AND MAINTENANCE

ALTON NATURAL GAS STORAGE LP

WSP PROJECT NO.: 111-26678
DATE: MARCH 7, 2019

WSP
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F +1 902-835-1645
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Tim Church
President, Alton Natural Gas Storage & Vice President,
Stakeholder Relations

wsp

TABLE OF CONTENTS

TABLES

APPENDICES

1 INTRODUCTION

1.1 PROJECT BACKGROUND

Alton Natural Gas Storage LP (Alton) is proposing to construct and operate a 10.5 km long natural gas pipeline that will connect the Alton Cavern Site to the existing Maritimes & Northeast (M&NE) Pipeline Halifax Lateral near Alton, Colchester County, Nova Scotia.

An Environmental Assessment (EA) of the proposed natural gas pipeline was approved by the Nova Scotia Minister of Environment on May 21, 2013 (NSE file #: 10700-40-40100-30-185). Under conditions of this approval, an Environmental Management Plan (EMP) must be submitted to Nova Scotia Environment (NSE) for approval and review, and the Department of Fisheries and Oceans (DFO) for review prior to construction or operation of the natural gas pipeline. The EMP is outlined in the following sections of this document and includes an Environmental Protection Plan (EPP), Contingency and Emergency Response Plans.

1.1.1 ALTON'S ENVIRONMENTAL POLICY

Alton Natural Gas Storage LP is committed to the protection of public health and safety, the environment and the corresponding properties of the Alton Natural Gas Pipeline Project. Therefore, Alton is implementing and maintaining the EMP for the Alton Natural Gas Pipeline and will retain full responsibility for the plans during construction, system operations, and maintenance.

1.2 EMP CONTEXT

1.2.1 PURPOSE

This document provides an EMP for the Alton Natural Gas Pipeline Project, near Alton, Colchester County, Nova Scotia, and is designed to meet regulatory obligations and environmental commitments. The purpose of this document is to communicate and incorporate this commitment to all stakeholders including staff, contractors, regulatory agencies and the public. The EMP will be used during construction, operation, and maintenance of the Alton Natural Gas Pipeline, and will be updated regularly to reflect any project modifications. This EMP intends to satisfy condition 3.1 of the Alton Natural Gas Pipeline Project EA Approval, originally dated May 21st, 2013 (Appendix A).

1.2.2 OBJECTIVES

The EMP has been prepared to:

a) Comply with regulatory commitments;

b) Comply with Alton's commitments to reduce environmental effects;

c) Provide clear and concise instructions regarding actions for protecting the environment, and reducing potential environmental effects;

d) Document environmental concerns during construction and operation, and appropriate protection procedures;

e) Function as a guide for environmental education and orientation; and

f) Communicate modifications to the project through the revision process.

1.2.3 ORGANIZATION OF THE EMP

The EMP is organized into five parts as shown below:

1. Introduction: An overview of the project, context and objectives.
2. Project Description: The natural gas pipeline location, construction and operation activities, timing and scheduling.
3. Summary of Regulatory Requirements: Specific approvals and environmental studies required during the project.
4. Roles and Responsibilities: Specific roles that will be assigned during the project construction and operation.
5. Resolution Process: The processes taken to address any environmental or public concerns.

1.2.4 DISTRIBUTION LIST

All revisions and updates to the EMP will be distributed to every party on the distribution list included below.

Table 1: EMP Distribution List

COPY NUMBER	NAME	ADDRESS	PHONE NUMBER	ORGANIZATION
01	Tim Church	Park Place 1, Suite 200 – 238 Brownlow Avenue, Dartmouth, NS B3B 1Y2	[redacted]	Alton Natural Gas Storage LP
02	Tanya Stefanishion	1700, 355 - 4th Ave SW Calgary AB T2P 0J1		Alton Natural Gas Storage LP
03	Ivan Bishop	1 Spectacle Lake Drive Dartmouth, NS B3B 1X7	(902) 835-9955	WSP Canada Inc.
04	Sean Cassidy	1 Spectacle Lake Drive Dartmouth, NS B3B 1X7	(902) 835-9955	WSP Canada Inc.
05	Emily Gillis	1 Spectacle Lake Drive Dartmouth, NS B3B 1X7	(902) 835-9955	WSP Canada Inc.
06	Kelly McNally	36 Inglis Place PO Box 824 Truro, NS B2N 4B4	(902) 893-5880	Nova Scotia Environment
07	Jennifer MacDonald	36 Inglis Place PO Box 824 Truro, NS B2N 4B4	(902) 893-5880	Nova Scotia Environment
08	Helen MacPhail	1903 Barrington Street Suite 2085, PO Box 442 Halifax, NS B3J 2P8	(902) 424-3960	Nova Scotia Environment
09	Melanie Cameron	1701 Hollis Street Founders Square Halifax, NS B3J 3M8	(902) 424-3160	Nova Scotia Department of Lands and Forestry
10	Mark McLean	1 Challenger Dr. PO Box 1006 Dartmouth, NS B2Y 4A2	(902) 802-0740	Fisheries and Oceans Canada

1.2.5 REVISION OF THE EMP

The EMP is a controlled document that will be updated throughout construction and operation of the project. Alton will be responsible to meet with the involved company personnel after each construction and operation season to determine if the document requires revisions.

2 PROJECT DESCRIPTION

2.1 LOCATION

The project is located within a 20 metre wide right-of-way (RoW) extending approximately 10.5 km between the underground caverns site south of Brentwood Rd. Nova Scotia (NS), to a tie-in to the Halifax Lateral pipeline east of Lanesville, NS (refer to Figure B-1, Appendix B). The proposed pipeline alignment consists mainly of forested land and agricultural fields.

2.2 PROJECT ACTIVITIES

The following project activities will be undertaken as part of the construction phase of the Alton Natural Gas Pipeline and are further described in Appendix C: EPP Section 5.

- Clearing;
- Grubbing;
- Temporary watercourse crossings;
- Grading and topsoil removal;
- Trenching;
- Pipe delivery, stringing and pipe preparation;
- Trench dewatering;
- Dam and pump/ dry watercourse crossings;
- Horizontal Directional Drilling under the Stewiacke River; and
- Installation at the cavern site and M&NE pipeline.

2.3 TIMING AND SCHEDULING

The project schedule has not been confirmed; however the following timelines are anticipated:

- [redacted]

3 SUMMARY OF REGULATORY REQUIREMENTS

3.1 REGULATORY CONSULTATION

Consultation with relevant regulatory authorities regarding the environmental management practices and mitigation measures is a key component of the EMP preparation and development process. A number of federal and provincial regulatory agency experts have been and will continue to be contacted throughout the EMP process and the lifespan of the project. All communication with regulatory agencies will be undertaken and/or facilitated by Alton personnel or designate.

3.2 PERMITS AND APPROVALS

Appendix A includes the Environmental Assessment Approval Conditions approved on May 21st, 2013 and supplemented on May 19th, 2015 and January 18th, 2018. These conditions will be met prior to commencing work on the Alton Natural Gas Storage Pipeline.

A summary of the project permitting plan is presented in Appendix D (Table D-1) and lists the expected environmental permit approvals that will be required prior to construction of the Natural Gas Storage Pipeline. Once project permits are submitted and approved they will be included in Appendix D of this document. Consultation with NSE will be ongoing during the project.

4 RESPONSIBILITIES AND TRAINING

4.1 ROLES AND RESPONSIBILITIES

The roles and responsibilities of all Alton Natural Gas Storage LP personnel during construction, operation, and maintenance are detailed below. Construction is expected to occur 10-12 hours a day and Operation will occur 24 hours a day during the lifespan of the project.

4.1.1 ALTON NATURAL GAS STORAGE LP MANAGEMENT

Alton Natural Gas Storage LP Management has the executive responsibility for ensuring that the construction, operations and maintenance of the project is executed such that the policy objectives are attained and EA and regulatory requirements are met. Alton is responsible for the commitment of financial resources during the projects lifespan.

4.1.2 ALTON NATURAL GAS STORAGE PROJECT - PROJECT MANAGER/ FACILITY ENGINEER

The Project Manager works under the Alton Natural Gas Storage LP Management and has been authorized to retain overall responsibility for project compliance within the companies' policies. The Project Manager has the authority to halt project activities if there are unacceptable risks to the environment, health, or safety. Shut down orders would be presented to the Alton Gas Storage LP in a timely manner (i.e. within 12 hours).

4.1.3 ALTON GAS CONSTRUCTION/ OPERATIONS MANAGER/ RESPONSE COMMANDER

The Alton Natural Gas Construction/Operations Manager, depending on the project phase, is the onsite representative for the company and has the responsibility of making sure all employees are complying with corporate policies. This Manager is responsible for:

- Critical decision making;
- Communication with appropriate government agencies;
- Acting as a focal point for information exchange;
- Ensuring that any environmental issues are responded to and remediated to an acceptable level; and
- Preparation of a report detailing the environmental response for submission to regulatory agencies.

The Response Commander must report to the Project Manager immediately in the event that an emergency occurs.

4.1.4 ENVIRONMENTAL INSPECTOR

Alton will designate third party Environmental Inspector(s) who will be onsite during construction of the project. The environmental inspector will be responsible for ensuring contractor compliance with the EPP and other environmental commitments (i.e., permit conditions, erosion and sediment control mitigation measures etc.) during project construction-related activities.

Duties of the Environmental Inspector include but are not limited to the following:

- Advising the construction supervisor to halt construction or temporarily suspend activities if necessary for the protection of wildlife or during significant weather events;
- Take immediate action on issues of non-compliance; liaise with regulatory agencies;
- Under direction of Alton company personnel undertake and/or coordinate required monitoring and report spill and non-compliances to regulatory agencies, if required; and
- Provide regular updates to Alton personnel during construction activities.

4.1.5 ALTON ENVIRONMENTAL EMERGENCY RESPONSE TEAM (EERT)

Prior to the commencement of project construction, the Response Commander will choose a group of employees to form the Environmental Emergency Response Team (EERT). The EERT will be formed in order to respond quickly to unforeseen environmental situations as directed by the company. The EERT will be available to respond at all times, including weekends and holidays, to various environmental situations as follows:

- Natural gas pipeline leak;
- Potential sedimentation of watercourses in the project area due to snowmelt, spring runoff and storm events;
- Embankment or slope failures;
- Spills/releases; and
- Failure of implemented environmental mitigative measures.

4.1.6 ALTON COMPANY/ CONTRACT PERSONNEL

All company and contract personnel working on the Project have the ability and responsibility to familiarize themselves with the response procedures, and contingency plans for the construction and operation of the Alton Natural Gas Storage Pipeline. Employees may recommend actions to the Response Commander and/or the Environmental Inspector if they believe that there are unacceptable risks to the environment, health, or safety.

4.1.7 OUTSIDE ORGANIZATIONS AND OTHER AGENCIES

Alton has been in consultation with regulatory agencies and other stakeholders in the community on the Project specifics. However, in the event of an emergency these agencies and stakeholders will be contacted to inform them of the response and remediation. Lists of stakeholders that may be notified are in Section 4.5 of this report.

4.2 COMMAND CENTRE

A command centre will be established at a location to be determined prior to construction commencement. The command center will be used as a source of leadership and assistance to ensure instruction and service are maintained in the event of an emergency. Any of the potential emergencies discussed in Section 6 Contingency/ Emergency Response Plans of the EPP (Appendix C) will initiate operation of the command centre.

4.3 PUBLIC ENGAGEMENT AND MEDIA RELATIONS

In the event that public engagement is required in an emergency situation, the Response Commander along with the Alton Communications lead in conjunction with AltaGas Corporate Communications will respond to the following:

- Members of the public who may be adversely affected; and
- Relevant stakeholders.

The Alton Site Communications lead in conjunction with AltaGas will decide who will speak on behalf of the person(s) responsible for the emergency and will be responsible to identify the relevant stakeholders.

4.4 TRAINING AND ORIENTATION REQUIREMENTS

4.4.1 POLICY

Under Alton Natural Gas Storage LP Policy, all workers will receive appropriate training for the hazards to which they may be exposed, or may require response.

4.4.2 REQUIRED TRAINING

Alton is responsible for all staff involved in the project to be trained under the Alton Natural Gas Storage LP Code of Practice for each phase (construction, operation, maintenance) of the project. All staff will be required to complete the following training:

- New employee orientation;
- Workplace Hazardous Materials Information System (WHMIS);
- Transportation of Dangerous Goods (TDG) (*not required by all employees); and
- First Aid and CPR.

Employees must have the above training certificates valid if working on-site. If any procedures change during the project, employees will be notified, and if required, trained on the changes. The EERT will have additional training on emergency procedures including, but not limited to, spill response and fires.

4.4.3 CONTRACTORS AND THEIR EMPLOYEES

Alton expects that all personnel working on its sites will have received all legislated training and all other training necessary to perform their work in a safe manner. Supervisors are responsible for ensuring their employees receive the required training.

4.4.4 RESPONSIBILITIES - WORKERS

All personnel working on the Project must be familiar with the EMP, EPP and Contingency Plan. The Construction Supervisor/ Operations Manager will ensure that all contractor employees receive a site specific orientation to these documents, at the start of work for this project.

It is the responsibility of the workers to:

- Work in a safe manner;
- Adhere to the EMP and associated EPP and Contingency/ Emergency Response Plans;
- Participate in scheduled training courses; and
- Notify their supervisor if a required training certificate has expired.

4.4.5 RESPONSIBILITIES - SUPERVISORS

It is the responsibility of the supervisors to:

- Ensure that workers have received the required training;
- Ensure that workers are retrained when their certificates expire;
- Ensure that copies of required training certificates and permits are kept on file; and
- Ensure that office workers receive appropriate training if their duties require them to visit field operations.

4.4.6 RESPONSIBILITIES - MANAGERS

It is the responsibility of the managers to monitor the training program to ensure workers are receiving the required training.

4.4.7 RESPONSIBILITIES - CORPORATE

It is the responsibility of the Alton Natural Gas Storage LP Corporate to review the training program with their managers to ensure that workers are receiving the appropriate training.

4.4.8 ENVIRONMENTAL ORIENTATION TRAINING

The following will be included in the training program:

a Communication on Alton's EHS commitment and obligations to the EMP/EPP;

b Work description with discussion of the individual activities and the particular environmental concerns associated with each activity;

c Orientation to sensitive environmental features on site (i.e., species at risk);

d Instruction on the specific environmental protection procedures for the work contained in the attached EPP;

e Communication procedures to report any unplanned events requiring emergency response;

f Maintenance of the EMP/EPP and associated documents; and

g Enforcement of the EMP/EPP.

4.4.9 ADDITIONAL TRAINING AND COMMUNICATION

In addition to the environmental orientation training program, the following section describes other opportunities, prior to and during the construction process, for communication and instruction between Project personnel.

Detailed Review of Project:

Alton's Project Manager will meet with the Project team and the Contractor Representatives prior to commencement of construction activities to review in detail the requirements of this EMP/EPP and ensure adequate preparations have been made.

Project Kick-off Meeting:

The Construction Supervisor will convene a meeting with the main supervisory personnel for all contractors to review this plan, the key elements, and the roles and responsibilities therein, prior to any on-site work. Similar meetings will be held at every critical phase of Project construction.

Toolbox Meetings:

Toolbox meetings involving all workers on site will be held daily to discuss any safety, health or environmental issues that have arisen or are expected to arise. Toolbox box meetings will be recorded and records will be maintained by the Project Manager and/or designate.

4.5 CONTACT LIST

A list of relevant government agencies and phone numbers are provided. Regulatory agencies are to be contacted by Company personnel only if approved by the Company. Alton contact names and phone numbers are provided to ensure the appropriate Company personnel can be reached during construction activities. Procedures for incident reporting and emergency response can be found in Section 6 of the EPP (Appendix C).

Table 2: Emergency Contact List

AGENCY / TITLE	AREA / SPECIFIC CONTACT	PHONE NUMBER / CONTACT INFORMATION
Alton Contacts		
24 hour Emergency Line	Stewiacke/ Alton	1-866-826-3830
Alton Cavern Site	Stewiacke/ Alton	/ (902) 639-0091
Emergency Contacts		
Fire Department	Stewiacke/ Brookfield	911
Ambulance	Stewiacke/ Brookfield	911
RCMP	Stewiacke/ Brookfield	911
Colchester East Hants Health Centre	600 Abenaki Rd, Truro	911
Forest Fire Response		
Nova Scotia Department of Lands and Forestry	Nova Scotia (toll free number for reporting fires, poaching or emergency wildlife situation)	1-800-565-2224
Environmental Emergencies and Spills		
Nova Scotia Department of Environment	Colchester County	(902) 893-5880
Nova Scotia Utility and Review Board	Halifax County	Phil Payzant: (902) 424-4448
Conservation		
Canadian Wildlife Service	Sackville, New Brunswick	(800) 668-6767
Nova Scotia Museum	Halifax	(902) 424-7353
Regulatory and Government Contacts		
Fisheries and Oceans Canada	Dartmouth	Mark McLean: (902) 802-0740
Environment and Climate Change Canada	Dartmouth	Geoff Mercer, RDG: (902) 426-4824
Nova Scotia Department of Energy and Mines	Halifax	Simon D'Entremont, Deputy Minister :(902) 424-4575 Bill O'Halloran: (902) 424-8184
Nova Scotia Environment	Truro	Jennifer McDonald: (902) 893-5880 Kelly McNally:(902) 893-5880
Nova Scotia Department of Agriculture	Truro	Kevin Bekkers: (902) 893-6363
Nova Scotia Department of Lands and Forestry	Halifax	Melanie Cameron: (902) 424-3160

Nova Scotia Office of Aboriginal Affairs	Halifax	Justin Huston: (902) 424-7662
Colchester County Municipal Office	1 Church St., Truro, NS	Mayor Christine Blair CAO Rob Simonds: (902) 897-3160 1-866-728-5144 (toll-free) In case of night and/ or weekend emergencies, call 902-897-3175
Town of Stewiacke	295 George Street Stewiacke, Nova Scotia	Mayor Wendy Robinson Acting CAO Grant Cooke: (902) 639-2231 For after hour emergencies related to services provided by the Town please contact the Public Works employee on call at: (902) 897-7823

Table 3: Emergency Stakeholder Contacts

AGENCY / TITLE	AREA	CONTACT INFORMATION
Stewiacke River Stakeholder Contacts		
Mi'kmaw Conservation Group/ Department of Environment and Natural Resources, The Confederacy of Mainland Mi'kmaq	57 Martin Crescent , Millbrook Mi'kmaw Community PO Box 1590, Truro NS B2N 5V3	
Cobequid Salmon Association	Truro	
Nova Scotia Salmon Association's Adopt-a-Stream Program	Nova Scotia	
Adopt-a-Stream program		
Atlantic Salmon Federation	Chester, NS (Federation's NS contact)	
Striped Bass Association	Wolfville	
MacDonald2 Aquaculture and Consultation	Lower Stewiacke	
Shubenacadie Commercial Fishermen's Association	Stewiacke	
Mi'kmaq of Nova Scotia Contacts		
Sipekne'katik First Nation	522 Church Street Indian Brook, NS	
Millbrook First Nation	Truro	
Assembly of NS Mi'kmaq Chiefs	Truro	
Native Council of Nova Scotia	Truro	

Table 4: Response Equipment and Suppliers

AGENCY / TITLE	AREA	PHONE NUMBER
Response Equipment and Material Suppliers		

5 RESOLUTION PROCESSES

5.1 ENVIRONMENTAL ISSUES RESOLUTIONS PROCESS

During all phases (construction, operation, and maintenance) of the Project, Project personnel are required to report any issues of environmental noncompliance to the Environmental Inspector and on-site Supervisor. A non-compliance may include any activity that is not complying with EPP requirements, permit conditions, or other regulatory requirements. Records of non-compliance will be recorded in a Compliance Tracking Database for the Project. The Environmental Inspector will monitor the Compliance Tracking Database to evaluate the effectiveness of the EPP and overall environmental compliance. This database will be updated weekly during construction and sent to Alton Gas Storage LP Management. Immediate action will be taken to ensure non-compliances are resolved and the appropriate actions are implemented to prevent re-occurrence. If actions are not corrected in a reasonable timeframe, the Environmental Inspector will notify the Project Manager, who will inform Alton management personnel, and the Contractor Supervisor will discuss and agree to a resolution. The Project Manager will have to approve the agreement, and see that it is completed correctly.

5.2 LAND OWNER RESOLUTION PROCESS

Communications with land owners may be received by the Alton land owner agent and communicated to Alton Gas Storage LP management. The Environmental Inspector and Contract Supervisors will be notified if any of the land owners have environmental concerns. If so, the concern will be assessed by the Environmental Inspector, and communicated to the appropriate parties. The Environmental Inspector and the Contract and/or Alton Supervisors will ensure the correct mitigation is implemented, as necessary, in a timely manner.

5.3 MI'KMAQ ENGAGEMENT

Alton Natural Gas Storage is committed to building long-term, mutually-beneficial working relationships with Indigenous communities while recognizing and respecting Indigenous and Treaty Rights, individual values and traditions. Since 2006 we have been developing relationships on a foundation of respect for the languages, customs, and political, social and cultural institutions of Indigenous peoples.

Communication from Mi'kmaq can be received by:

- Direct communication with project representatives including with Alton Natural Gas Storage LP Management (Alton President and Alton Site Services Manager);
- Email: AltonProject@AltaGas.ca;

- Phone: (902) 639-0091.

If there are any environmental concerns, they will be logged and reported to the Environmental Inspector and/or the Contractor Supervisors on a daily basis. It will be the responsibility of the Environmental Inspector to make sure that appropriate mitigation is implemented, as justified, in a timely manner. An Alton Natural Gas Pipeline Environmental Assessment Mi'kmaq Communications Plan has been developed and is included in Appendix E.

6 REFERENCE

Stantec Consulting Ltd., 2012. Environmental Management Plan for the Alton Natural Gas Pipeline Environmental Assessment Registration. Report produced for Alton Gas Storage LP. File # 121510724

Stantec Consulting Ltd., 2014. Environmental Management Plan for the Alton Natural Gas Pipeline. Report produced for Alton Gas Storage LP. File # 121510724/1012229

APPENDIX

A CONDITIONS OF APPROVAL

Nova Scotia

Department of Environment

Office of the Minister

PO Box 442
Halifax, Nova Scotia
B3J 2P8

Our File Number:
10700-40
40100-30-185

MAY 2 1 2013

David Birkett
President, Alton Natural Gas Storage LP
1700, 355 – 4th Avenue SW
Calgary AB T2P 0J1

Dear Mr. Birkett:

Re: Environmental Assessment – Alton Natural Gas Pipeline, Alton, Colchester County, Nova Scotia

The environmental assessment of the proposed Alton Natural Gas Pipeline Project, Alton, Colchester County, Nova Scotia, has been completed. This approval is for the "Original Alignment" of the pipeline as described in the Focus Report and does not apply to the "Alternative Corridor" as presented in the Focus Report.

This is to advise that I have approved the above project in accordance with Section 40 of the *Environment Act,* S.N.S., 1994-95 and section 18(a) of the Environmental Assessment Regulations, N.S. Reg. 348/2008, made under the Act. Following a review of the information provided by Alton Natural Gas Storage LP and the information provided during the government and public consultation of the environmental assessment, I am satisfied that any adverse effects or significant environmental effects of the undertaking can be adequately mitigated through compliance with the attached terms and conditions.

This approval is subject to any other approvals required by statute or regulation, including, but not limited to, approval under Part V of the Nova Scotia *Environment Act* (Approvals and Certificates section).

If you have any questions regarding the approval of this project, please contact the Acting Manager, Environmental Assessment Branch, Ms. Helen MacPhail, at (902) 424-3960 or via e-mail at macphafh@gov.ns.ca.

Sincerely,

Sterling Belliveau
Minister

Encl.
c: Helen MacPhail

Pages 88 to / à 92

are public-denied pursuant to section

est public-refusé en vertu de l'article

68(a)

of the Access to Information Act

de la Loi sur l'accès à l'information

Environment
Office of the Minister
PO Box 442, Halifax, Nova Scotia, Canada B3J 2P8 • www.novascotia.ca

our file number
40506

MAY 1 9 2015

David Birkett
President, Alton Natural Gas Storage LP
87 Main Street West
Stewiacke NS B0N 2J0

Dear Mr. Birkett:

Re: Environmental Assessment Approval Conditions
Project File No. 10700-40-40100-30-187
Alton Natural Gas Pipeline, Alton, Colchester County, Nova Scotia

Thank you for your letter of April 23, 2015 formally requesting a modification to two Conditions (1.3 and 7.2) of the Environmental Assessment (EA) Approval that was issued on May 21, 2013 for the Alton Natural Gas Pipeline (the Project).

Condition 1.3 – Commencement of Work

I understand that due to project delays, including time to allow for ongoing consultation with the Mi'kmaq of Nova Scotia, Alton is requesting an extension of the time limit for commencement of work, as set forth in Condition 1.3 of the EA Approval.

The Approval Holder must, within two years of the date of issuance of this Approval, commence work on the Undertaking unless granted a written extension by the Minister.

Staff at Nova Scotia Environment have reviewed the information provided and have raised no concerns. This letter will serve as my authorization to extend the commencement of work requirement by two years. This letter must be attached to, and will form part of, the Environmental Assessment Approval for the Alton Natural Gas Pipeline Project (May 21, 2013) and work must commence on or before May 21, 2017.

The approval remains subject to obtaining all other necessary approvals, permits or authorizations required by municipal, provincial and federal acts, regulations, by-laws, guidelines, policies or standards before commencing work.

Condition 7.2 – Clearing and Grubbing

Site preparations that include deforestation, clearing and grubbing must be undertaken between September 1st and March 30th in order to minimize impacts on breeding birds that may include endangered and threatened species listed under the Species at Risk Act and/or the Nova Scotia Endangered Species Act, unless otherwise approved by NSE.

.../2

I understand that Alton anticipates being able to complete most cutting and clearing work during the winter months. However, Alton requests approval to complete grubbing (minor clearing activities, if necessary) during the summer months in order to adhere to the anticipated construction schedule and minimize potential impacts to the environment. Condition 7.2 is written to allow for some flexibility with the *"unless otherwise approved by NSE."* In addition, condition 7.3 states that:

If site preparation activities occur between mid-July and August 31st, the Approval Holder must prepare and implement a monitoring and mitigation plan for breeding activity (ie. nesting) pursuant to the Migratory Bird Convention Act, in consultation with DNR and the Canadian Wildlife Service.

So, to clarify, if Alton is requesting to carry out cutting and clearing work during the summer months, you must consult with the Canadian Wildlife Service and the Nova Scotia Department of Natural Resources to develop a suitable monitoring and mitigation plan for breeding bird activities. Once finalized, this plan must be submitted to Nova Scotia Environment (NSE) for acceptance. Once accepted by NSE the plan must be implemented.

If you have any questions regarding the approval of this project, please contact Peter Geddes, Director, Policy, at (902) 424-6250 or via email at Peter.Geddes@novascotia.ca.

Sincerely,

Randy Delorey, MLA
Minister of Environment

c: Peter Geddes, Nova Scotia Environment
Brad Skinner, Nova Scotia Environment
Bob Petrie, Department of Natural Resources
Paul Chamberland, Canadian Wildlife Service

NOVA SCOTIA
Environment
Office of the Minister

PO Box 442, Halifax, Nova Scotia, Canada B3J 2P8 • www.novascotia.ca/nse

Our File number:
10700-40-52641

JAN 18 2018

Tim Church
President, Alton Natural Gas Storage
Vice-President, Stakeholder Relations, AltaGas Ltd.
PO Box 70
Stewiacke, NS B0N 2J0
Via email: [redacted]

Dear Tim Church:

Thank you for your letter of December 7, 2017 requesting amendments to sections 1.3 and 4.1 of the Environmental Assessment Approval Project Conditions for the Alton Natural Gas Pipeline Project (dated May 21, 2013). The requested amendments to these conditions would extend the timeframe by which commencement of work on the undertaking and the development and implementation of the referenced compensation plan are required to May 2019. Responses specific to this request are provided below for each of the relevant sections.

Condition 1.3 – Commencement of Work

As you noted, this condition was previously extended by Nova Scotia Environment stating that work must commence on or before May 21, 2017.

The Approval Holder must, within two years of the date of issuance of this Approval, commence work on the Undertaking unless granted a written extension by the Minister.

Staff at Nova Scotia Environment have reviewed the latest request and have raised no concerns. This letter will serve as my authorization to extend the commencement of work requirement by another two years. This letter must be attached to, and will form part of, the Environmental Assessment Approval for the Alton Natural Gas Pipeline Project (May 21, 2013) and work must commence on or before May 21, 2019.

Condition 4.1 – Compensation Plan

Within four years of the date of this EA Approval, the Approval Holder must develop and implement a compensation plan that has been reviewed and approved by NSE, for impacts on the Stewiacke River Wilderness Area. This plan shall include, but may not be limited to, the securement of conservation land in the vicinity of the Undertaking for statutory protection by the province.

Staff have reviewed this request and have determined that the deadline of May 21, 2019 should also apply to this condition. This letter will serve as my authorization to extend the deadline for the compensation plan. This letter must be attached to, and will form part of, the Environmental Assessment Approval for the Alton Natural Gas Pipeline Project (May 21, 2013) and the compensation plan must be developed and implemented by May 21, 2019.

.../2

I understand that development and implementation of the compensation plan and commencement of pipeline construction have been delayed but you anticipate will be resolved in 2018. As work on the pipeline proceeds you have indicated that Alton will engage with Nova Scotia Environment to ensure compliance with all conditions outlined in the environmental assessment approval. In addition, you have written that Alton will engage with representatives of the Mi'kmaq of Nova Scotia, and external stakeholders, including via the Alton Community Liaison Committee. I appreciate your ongoing adherence to these commitments.

If you have any further questions, please contact Helen MacPhail, Supervisor of Environmental Assessment at (902) 483-2696 or via email at macphafh@novascotia.ca.

Sincerely,

Iain Rankin, MLA
Minister of Environment

c: Helen MacPhail, Supervisor of Environmental Assessment, NSE

APPENDIX

B FIGURE

APPENDIX

C ENVIRONMENTAL PROTECTION PLAN AND CONTINGENCY PLAN

EMP APPENDIX C: ENVIRONMENTAL PROTECTION PLAN AND CONTINGENCY/ EMERGENCY RESPONSE PLAN

CONSTRUCTION, OPERATION AND MAINTENANCE

ALTON NATURAL GAS STORAGE LP

WSP PROJECT NO.: 111-26678
DATE: MARCH 7, 2019

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SIGNATURES

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Team Lead – Ecology/EIA

Sean Cassidy, P.Eng.
Director – Atlantic Environment

Tim Church
President, Alton Natural Gas Storage & Vice President, Stakeholder Relations

This report was prepared by WSP Canada Inc for the account of Alton Gas Storage LP, in accordance with the professional services agreement. The disclosure of any information contained in this report is the sole responsibility of the intended recipient. The material in it reflects WSP's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This limitations statement is considered part of this report.

The original of the technology-based document sent herewith has been authenticated and will be retained by WSP for a minimum of ten years. Since the file transmitted is now out of WSP's control and its integrity can no longer be ensured, no guarantee may be given with regards to any modifications made to this document.

LIST OF ACRONYMS

AC CDC	Atlantic Canada Conservation Data Centre
BMP	Best Management Practices
CSA	Canada Standards Association
CWS	Canadian Wildlife Service
DFO	Department of Fisheries and Oceans Canada
EA	Environmental Assessment
EERT	Environmental Emergency Response Team
EMP	Environmental Management Plan
EPP	Environmental Protection Plan
HDD	Horizontal Directional Drilling
LP	Limited Partnership
MBCA	*Migratory Bird Convention Act*
M&NE	Maritimes and Northeast Pipeline
MSDS	Material Safety Data Sheets
NSE	Nova Scotia Environment
NSESA	*Nova Scotia Endangered Species Act*
NSDLF	Department of Lands and Forestry
NSUARB	Nova Scotia Utility and Review Board
OD	Outside Diameter
POLs	Petroleum, Oil, and/or Lubricants
PPE	Personal Protective Equipment
RoW	Right-of-Way
SARA	*Species at Risk Act*
TWA	Temporary Work Area
TSS	Total Suspended Solids
WC	Watercourse Crossing
WHMIS	Workplace Hazardous Materials Information System
WMP	Waste Management Plan

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1 PURPOSE OF THE EPP

This Environmental Protection Plan (EPP) has been prepared to support the construction of a natural gas pipeline and associated Right-of-Way (RoW) that has been proposed for the Alton Natural Gas Storage Project (the Project) for Alton Natural Gas Storage LP (Alton). During Project clearing, construction, operation and maintenance, the EPP will be used in addition to other Project documents, procedures, approvals and equipment manuals to ensure compliance with regulatory requirements.

As part of the larger natural gas storage project, Alton has also constructed a waterline where water will be drawn from the Shubenacadie River (River Site) and transported to the facility (Cavern Site) near Alton, Nova Scotia. This water will be used for solution mining, with a second pipeline to transport brine to the River Site where it will be diluted and returned to the Shubenacadie River during the cavern development process. Due to similarities between the two projects, the EPP from Appendix D of the report by Stantec Consulting Ltd. (Stantec) for Alton titled "*Industrial Approval Application – Alton Natural Gas: Phase 3*" dated March 31, 2014 has been modified to address the proposed natural gas pipeline. In addition, the Environmental Assessment (EA) document prepared by Stantec for the natural gas pipeline project titled "*Alton Natural Gas Pipeline Environmental Assessment Registration*" dated July 2012, has also been referenced.

Specifically, the purpose of this EPP is to:

a) Document and describe the measures to mitigate potential adverse environmental effects resulting from the clearing and grubbing of the pipeline RoW, installation of the natural gas pipeline, operation of the pipeline and construction of the junction to the Maritimes and Northeast Pipeline (M&NE) Halifax Lateral and associated facilities;

b) Provide clear and concise guidance to Project personnel and contractors regarding the procedures for protecting the environment;

c) Provide instructions to the contractors and communicate environmental mitigation requirements;

d) Outline inspection and monitoring requirements for Environmental Inspectors during the construction of the Project;

e) Demonstrate that the Project's environmental commitments have been met by providing the basis for the environmental monitoring to be undertaken before, during and after construction;

f) Provide an educational tool for the orientation and training of Project personnel;

g) Define contractor responsibilities for the protection of the environment under the terms and conditions of their construction contract with Alton; and

h) Communicate environmental commitments and mitigation measures to regulatory agencies, stakeholders and the public.

As required, Alton or their contractors will develop separate Project health and safety manuals which will relate to issues of health and safety associated with Project personnel and the public.

The term "environmental effect" as used throughout this EPP is intended to be synonymous with "environmental effect" as defined under the Nova Scotia Environmental Assessment Regulation (EA Regulation).

The purpose of this EPP is to ensure the fulfillment of Alton's environmental commitments made during the course of the environmental permitting and approvals process for the Project, which includes all environmental commitments made in the EA, and responses to information requests from regulatory authorities. However, the regulatory approvals will take precedence over the EPP, in the event of discrepancies.

This EPP describes the environmental protection, mitigation measures and environmental commitments that will be made during the course of the Nova Scotia Environment (NSE) regulatory permitting and approvals process. In addition, as approvals and permits for the Project are issued, they will be reviewed to determine if a revision to the EPP is warranted.

2 ENVIRONMENTAL MANAGEMENT PROCESS

The environmental management process and documentation requirements that will be followed during clearing, grubbing and construction are described below. Environmental Inspectors will receive appropriate training and orientation, and will become familiar with the documentation (e.g., EPP), environmental features and right-of way (RoW) design.

The Environmental Inspector will inspect the property and identify (i.e., with flagging, signs or other means) environmentally sensitive features, before the RoW and temporary work area (TWA) is cleared. The Environmental Inspector will discuss environmentally-sensitive features with the Contractor personnel and, if required, review the management practices and mitigation measures to be implemented before clearing begins. The Environmental Inspector will re-inspect the property after clearing and re-establish signage and flagging of environmentally-sensitive features, as required. The Environmental Inspector will continue to discuss environmentally-sensitive features with construction crews, as construction progresses and the discussions will be documented in the Environmental Inspector's Daily Report (Section 8).

All Project-related work is to be performed in accordance with the EPP, regulatory requirements, and any other requirements identified by the Environmental Inspector. Compliance with the aforementioned requirements is the responsibility of the Project Manager, the Construction Supervisor, and Contractor Supervisor. The Environmental Inspector will monitor project activities to verify that clearing, site preparation and construction have been completed as per the requirements in Sections 3, 4 and 5. This will be documented in the Environmental Inspector's Daily Report (Section 8). Non-compliances will be noted and reported to the Construction Supervisor and Contractor Supervisor. The EPP revision process will be followed, should any deviations from the EPP or agreed to mitigation and management practices be required.

The Contractor will immediately address any accidents, malfunctions, and unplanned events (e.g., spills, emergency response) in accordance with the Contingency/Emergency Response Plans described in Section 6. The Contractor Supervisor will notify the Environmental Inspector and the Construction Supervisor, and the notifications will be documented. Should contact with regulatory agencies be required, it will be made by Company personnel. As defined in the contingency/emergency response plans and procedures, the Environmental Inspector will notify the appropriate regulatory agencies and Project personnel. The notifications and response actions taken will be documented in the Environmental Inspector's Daily Report or other reports specified by the EPP procedures.

Non-Project visitors to the site will be escorted by Alton personnel or the Environmental Inspector, as appropriate.

3 ENVIRONMENTALLY SENSITIVE FEATURES

3.1 WETLANDS

A total of 37 wetlands have been identified within the study corridor during the 2007, 2008, 2011, 2014, 2015 and 2018 field surveys (See Table 1 and Environmentally Sensitive Features Figure: Appendix C-1). Alton has committed to avoiding wetlands where feasible and providing a 30 m buffer where possible to limit the potential for interaction. However, a total of ten wetland crossings have been identified along the 20 m wide RoW, including wetlands 5, 19, 22, 24, 25, 26, 27, 28, 29, and 32 (as noted in Table 1 below). These wetlands will be subject to full wetland evaluations according to provincial policy and guidelines, and permit applications will be completed prior to the alteration of wetlands.

During field surveys three bird species (Common Nighthawk, Canada Warbler, and Olive-sided Flycatcher) protected under the *Species at Risk Act* and *Nova Scotia Endangered Species Act were* identified. The Common Nighthawk and Canada Warbler have been identified near, or within, three of the ten wetlands being crossed. Wetland 5 had one occurrence of a Common Nighthawk approximately 100 m southeast of the wetland during Stantec's 2011 bird survey. Wetland 16 had one occurrence of a Canada Warbler on the southern portion of the wetland during Stantec's 2007 bird survey, however, the pipeline alignment now avoids any direct disturbance to wetland 16. Wetland 19 had one occurrence of a Canada Warbler approximately 10 metres east of the wetland during Stantec's 2008 bird surveys (See Appendix C-1). The presence of these protected species within these wetlands being crossed by the pipeline will likely require specific monitoring and mitigation procedures that will be included in the wetland alteration approvals from NSE (See EMP: Appendix D).

All wetlands that will be directly or potentially indirectly (if within 30 m of the RoW centerline) impacted by construction will be monitored prior to, during, and after construction to evaluate the extent and degree of wetland alterations. Wetland monitoring will document the wetland plant community using a series of semi-permanent plots to characterize the structure and composition of plant communities within the restored wetlands and evaluate impacts of construction activities on their character and integrity; and hydrological characters of the wetland. The frequency, scope, and timing of monitoring will be confirmed through consultation with Alton and NSE. Additional details pertaining to the baseline monitoring will be included in a wetland alteration report.

Baseline wetland monitoring was completed in August 2015 for wetlands that will be crossed by the pipeline as well as wetlands 6, 21 and 23, which may be indirectly impacted by the pipeline construction. Semi-permanent monitoring plots were established at all locations except for wetland 28 and 29, which are considered to be marginal wetlands (small and with low wetland functionality) that will be significantly disturbed by construction activities (and therefore monitoring plots are not expected to survive). Additional monitoring is expected to be completed in the spring/summer of 2019 related to the newly identified wetlands along pipeline re-alignment Re-Route #2 (see Appendix C-3). Baseline monitoring will be required at wetland 32 which will be crossed by the pipeline and an evaluation will be completed to determine which newly identified wetlands (within the 30 m buffer of the RoW) are likely to be indirectly impacted during construction however it is expected that baseline monitoring will be required at WL, 31, 33, 34, 35, 36, 37.

Table 1: Wetlands

WETLAND ID #	TYPE	APPROXIMATE DISTANCE FROM CENTRE OF ROW (M)	APPROXIMATE LENGTH OF PIPELINE CROSSING AT THE CENTERLINE (M)	APPROXIMATE TOTAL AREA (M2)	SARA SPECIES IDENTIFIED IN OR NEAR WETLAND	BASELINE WETLAND MONITORING COMPLETED
WL-1	Deciduous Treed Swamp	55	-	8,700	Olive-sided Flycatcher	no
WL-2	Tall Shrub Swamp	250	-	1,610	no	no
WL-3	Coniferous Treed Swamp, Tall Shrub Swamp	170	-	14,500	Canada Warbler	no
WL-4	Cut-over Treed Swamp, Mixwood Treed Swamp, Coniferous Treed Swamp	100	-	3,830	Canada Warbler	no
WL-5	Low Shrub Swamp, Tall Shrub Swamp	crosses RoW	37	15,778	Common Nighthawk	yes
WL-6	Mixwood Treed Swamp, Cut-over Treed Swamp	3	-	8,200	Canada Warbler	yes
WL-7	Coniferous Treed Swamp	100	-	176	no	no
WL-8	Coniferous Treed Swamp	110	-	17,470	Common Nighthawk, and Canada Warbler	no
WL-9	Coniferous Treed Swamp, Mixedwood Treed Swamp, Cut-over Treed Swamp	40	-	71,632	no	no
WL-10	Tall Shrub Swamp	280	-	4,080	no	no
WL-11	Tall Shrub Swamp	280	-	4,100	Canada Warbler	no
WL-12	Fresh Marsh (old beaver flood)	65	-	4,187	no	no
WL-13	Mixedwood Treed Swamp	55	-	1,840	no	no
WL-14	Mixedwood Treed Swamp	140	-	3,150	no	no
WL-15	Mixedwood Treed Swamp	50	-	2,480	Canada Warbler	no
WL-16	Coniferous Treed Swamp, Mixedwood Treed Swamp, Cut-over Treed Swamp, Wet meadow, Bog	13	-	19,240	Canada Warbler	yes
WL-17	Mixedwood Treed Swamp (Immature)	271	-	2,862	no	yes
WL-18	Mixedwood Treed Swamp, Deciduous Treed Swamp, Cut-over Treed Swamp, Cut-over Treed Swamp (Herbicide)	80	-	14,180	Olive-sided Flycatcher, Common Nighthawk	no
WL-19	Mixedwood Treed Swamp	crosses RoW	43	14,466	Canada Warbler	yes
WL-20	Tall Shrub Swamp	500	-	1,770	no	no
WL-21	Mixedwood Treed Swamp	22	-	17,105	no	yes
WL-22*	Swamp, Cut-over Treed	crosses RoW	19	1,216	no	yes

WETLAND ID#	TYPE	APPROXIMATE DISTANCE FROM CENTRE OF ROW (M)	APPROXIMATE LENGTH OF PIPELINE CROSSING AT THE CENTERLINE (M)	APPROXIMATE TOTAL AREA (HA)	AREA SPECIFIC IDENTIFICATION OF YEAR WETLAND	BASELINE WETLAND MONITORING COMPLETED
WL-23*	Mixedwood Treed Swamp	30	-	789.6	no	yes
WL-24*	Mixedwood Treed Swamp	crosses RoW	22	3,043	no	yes
WL-25*	Mixedwood Tree/ Tall Shrub Swamp	crosses RoW	11	6,602	no	yes
WL-26*	Fresh Marsh (old beaver flood)	crosses RoW	5	189,256***	no	yes
WL-27*	Shrub Wet Meadow	crosses RoW	23	2,934	no	yes
WL-28*	Shrub Swamp	crosses RoW	-	276	no	**
WL-29*	Bog, Shrub Swamp	crosses RoW	10	751	no	**
WL-30*	Mixedwood Treed Swamp	376	-	1,934	no	yes
WL-31*	Coniferous Treed Swamp	13	-	1,026	Data Pending	TBD
WL-32*	Data Pending	crosses RoW	40	6,633	Data Pending	Pending
WL-33*	Coniferous Swamp	14	-	12,890	Data Pending	TBD
WL-34*	Mixedwood Treed Swamp	13	-	5,088	Data Pending	TBD
WL-35*	Coniferous Swamp	13	-	2,081	Data Pending	TBD
WL-36*	Data Pending	18	-	3,423	Data Pending	TBD
WL-37*	Data Pending	13	-	3,297	Data Pending	TBD

Notes

Wetlands directly impacted

Wetlands with potential to be indirectly impacted

* Wetland not originally in EA. These wetlands were discovered upon further field assessment of the RoW.

** Baseline plots not established because they are considered to be marginal wetlands (small and with low wetland functionality) that will be significantly disturbed by construction (and therefore monitoring plots are not expected to survive).

*** Total wetland area based on field delineation, photo interpretation and NSDLF wetland mapping.

3.1.1 MITIGATION

Mitigation measures and best management practices for all phases of construction and operation within the vicinity of wetlands are included throughout this EPP. Specific mitigation measures for wetlands being crossed within the project area include:

General

a) No refueling shall take place within 30 m of a wetland;

b) A minimum 30 m vegetated buffer zone will be maintained along the perimeter of wetlands that will not be directly impacted by the Project. If not possible, wetlands shall be monitored to evaluate potential indirect effects;

c) Where appropriate, sediment control fences will be installed and maintained along the edges of exposed soils within wetland areas;

d) During construction, the contractor will ensure that run-off from tree removal activities will be diverted away from wetland areas;

e) A wetland specialist will be on site during construction activities within wetlands to aid in the proper restoration of wetland habitat; and

f) In areas where wetlands transverse the entire RoW width, access for clearing and RoW preparation outside of the wetland buffer areas will deviate around the wetland, where possible, or the Contractor will be responsible for installing temporary mitigation measures, such as swamp mats or brush mats to cross the wetland. These mats distribute the weight load over a much larger area (spatially and temporally), and only minor disturbances are expected. The contractor will ensure that any mats used will be removed at the end of construction following equipment removal.

Clearing

a) A 30 m buffer zone will be established for all wetland crossings within which clearing will either be conducted by hand or by equipment accessing the work area from outside the buffer zone.

Grubbing

a) A 30 m buffer strip will be maintained at wetland crossings within which vegetation will remain until just prior to pipeline installation across the wetland, and disturbance will be limited to the trench width (where feasible);

b) Setting aside the top layer of wetland vegetation and soils prior to pipeline construction shall be completed with the aim of keeping the top 30-50 cm intact so that it can be replaced after the remainder of the pipeline has been backfilled. These materials shall be set aside (recommended 30 m outside of the wetland area) for salvaging during the wetland restoration; and

c) Vegetated topsoil from wetlands will be stored in such a way as to minimize the mixing of topsoil with sub-surface soils.

Trenching and Dewatering

a) Subsurface materials excavated during trenching in wetlands shall be stored outside the wetland and separately from surface materials;

b) Where flow through the wetland is parallel to the pipeline, altered hydrology issues should be minimal. Where flow, even sheet flow, is more perpendicular to the pipeline, great care will be needed to maintain the flow through careful backfilling and avoiding the creation of a dam effect and ponding;

c) Grading materials for backfilling trenches after pipeline installation will be stored along the corridor or in a temporary work area located a minimum of 30 m from wetland boundaries where practicable;

d) Trench plugs or breakers will be installed where trenches cross wetland boundaries to avoid dewatering, where required; and

e) Water levels in open trenches will be monitored to evaluate dewatering and overflow issues and the efficacy of trench plugs and breakers.

Backfilling

a) Following pipeline installation, backfilling will commence as soon as possible. The grade fill and substrate should be installed to accommodate hydrology and vegetation;

b) Wetland vegetation and peat material will be replaced in the wetland areas;

c) Trench material and vegetated topsoil will be replaced in a way that prevents mixing or loss of materials;

d) Grades will be restored as close as practical to pre-construction levels;

e) All temporary drainage devices will be removed to restore hydrology; and

f) Salvaged wetland surface vegetation material will be replaced in wetland areas.

RoW Restoration and Maintenance

a) Any temporary access measures implemented through wetlands will be removed or altered to ensure wetland functionality and protection;

b) The flagging of setbacks, and use of mechanical vegetation control (i.e., no herbicides) will be implemented to prevent disturbance to wetland habitats during gas pipeline operation and maintenance;

c) Vegetation control measures within wetland crossings will be installed, such as corduroy crossings and hand clearing to allow continued pipeline access without further wetland alterations;

d) No chips or debris will be left in wetlands or their buffers; and

e) Monitoring and adaptive management will be implemented, if required.

3.2 WATERCOURSES

A total of ten watercourse crossings have been identified along the proposed 20 m wide RoW (see Table 2 and Environmentally Sensitive Features Figure: Appendix C-1), including the Stewiacke River (WC-2) and Watering Brook (WC-6). Where possible, aquatic surveys were conducted at the RoW crossings for each of the watercourses at a distance of 100 m upstream and downstream of the RoW. Watercourses 1, 2, 3, 4, 5, 8 and 9 were assessed by Stantec in 2008 and 2011, and watercourses 6 and 7 were assessed by WSP in 2014 and 2015. Two additional watercourses (WC 10 and WC 11) were identified by WSP in 2018 which cross the proposed pipeline re-alignment (Re-Route #2; Figure C-3); aquatic surveys and a detailed assessment of these watercourses is scheduled for spring/summer 2019.

All of the watercourses except for WC-2 (Stewiacke River), are anticipated to be dry crossings (via dam and pump technique). WC-2 (Stewiacke River) is anticipated to be a trenchless crossing (i.e., Horizontal Directional Drilling (HDD)) which will significantly reduce the potential for any adverse effects to the watercourse. Prior to working near/within watercourse crossings, Alton will submit a Watercourse Alteration Application to NSE for Approval. Specific details regarding the watercourse crossings will be included in the application.

Table 2: Watercourse Crossing List

WATERCOURSE ID	NAME	DATE OF ASSESSMENT MONTH-YEAR	COORDINATES (NAD 83)		WATERCOURSE ON 1:10000 NSGC MAPS	NATURE OF WATERCOURSE	WATERCOURSE CROSSING PROPOSED METHOD	POTENTIAL FISH PRESENCE WITHIN ROW	POTENTIAL FOR SARA SPECIES PRESENT WITHIN ROW	AVERAGE BANK CHANNEL WIDTH (M)	MAXIMUM DEPTH (M)
			Easting	Northing							
WC-1	Unnamed Tributary to Stewiacke River	Jul-08	479104	5005289	Y	Narrow headwater stream	Dam and Pump	Y	Y	1.09	0.12
WC-2	Stewiacke River	Jul-08	480085	5003405	Y	Wide, Flat section of River	Horizontal Directional Drilling	Y	Y	34	1.64
WC-3	Unnamed Stream	Jul-08	480777	5002360	N	Narrow headwater stream	Dam and Pump	N	N	1.17	0.11
WC-4	Unnamed Tributary to Watering Brook	Nov-11	481036	5002290	Y	1st order stream, narrow and slow	Dam and Pump	Y	Y	1.75	0.36
WC-5	Unnamed Channel	Jul-08	481676	5001672	N	Narrow headwater channel	Dam and Pump	N	N	1.22	0
WC-6	Watering Brook	Jun-15	482669	5000754	Y	3rd Order Stream	Dam and Pump	Y	Y	2.4	0.11
WC-7	Unnamed Channel	Jun-15	483106	5000331	N	Narrow headwater channel	Dam and Pump	N	N	0.87	0.14
WC-9	Unnamed Tributary to St. Andrews River	Jul-08	484314	4999232	Y	2nd Order Stream	Dam and Pump	Y	Y	2.68	0.1
WC-10*	TBD	TBD	484795	4998394	TBD	TBD	TBD	TBD	TBD	TBD	TBD
WC-11*	TBD	TBD	483814	5000098	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Notes

* Watercourses not originally in EA. These watercourses were discovered upon further field assessment of the RoW. A detailed assessment is required in the spring/summer 2019.
- WC-8 is no longer being crossed by the RoW therefore has not been included in the table above.

3.2.1 MITIGATION

Best management practices and mitigation measures for all phases of construction and operation within the vicinity of watercourses are included throughout this EPP. Specific mitigation measures for watercourses within the project area include:

a) No in-stream work or use of equipment within 30 m of a watercourse will be conducted without an authorization (approval) from NSE;

b) Unless indicated otherwise in the approval from NSE, in-stream work will be limited to the period between June 1 and September 30;

c) Use of isolated stream crossing techniques (Section 5.1.8 dry crossing) will be implemented, except for the Stewiacke River (WC-2) crossing (proposed to be HDD);

d) During construction, the contractor will ensure that run-off from tree removal activities will be diverted away from watercourse areas;

e) An Environmental Inspector will be on site during construction activities within watercourses to aid in the proper restoration of watercourse habitat;

f) Maintain levels of clean flow around water crossing (upstream and downstream), during pipe installation at dry crossings;

g) Employ erosion/sedimentation control measures as described in Section 4.2 of this EPP;

h) Provide contingency plans for mitigation of potential erosion and watercourse sedimentation (these will be included in the ESC plans for the watercourse alteration approval applications);

i) Establish a 30 m wide undisturbed (vegetated buffer) zone on either side of watercourse until specific water crossing activities commence;

j) A 30 m buffer zone will be established for all watercourse crossings within which clearing will either be conducted by hand or by equipment accessing the work area from outside the buffer zone;

k) Prepare equipment and piping ahead of time to reduce the duration of stream crossing work;

l) Avoid unnecessary disturbance to a stream bed and/or wetland;

m) Construct temporary bridges or use alternate pathways (logging roads, bridges) where applicable;

n) Implement sediment control structures along all stream banks prior to crossing work;

o) Maintain sediment control structures (by inspecting and repairing structural problems during and after storm events, removing accumulated sediment at regular intervals or at designated capacities, and by disposing of it at an approved site, given its unsuitability as structural fill material);

p) Stabilize exposed soil as soon as possible (e.g., stabilize interim exposed soil with mulch, erosion control blankets or final exposed soil with fast-growing, non-invasive, native vegetation);

q) Discharge all pumped water a minimum of 30 m from watercourses and ensure sufficient filtration prior to re-entry to a watercourse; and

r) Restore watercourse channels and banks to their original state following pipeline installation.

Careful attention to sediment and erosion control mitigation measures, hazardous materials handling and working in dry conditions will help to minimize any negative environmental impacts during watercourse crossings. See Section 5.1.8 (Dam and Pump) for more details.

3.3 RARE AND UNCOMMON VEGETATION

Vegetation surveys were conducted along the RoW in 2008 and 2015 to determine if any rare vascular plants were present. Additional vegetation surveys are scheduled for the spring and summer of 2019 along the pipeline re-alignment (Re-Route #2). The following table lists the Rare and Uncommon vascular plants identified within the proposed 20 m wide RoW.

Table 3: Rare and Uncommon Vascular Plants

COMMON NAME	SCIENTIFIC NAME	NSDLF RANK	AC CDC S RANK
Bicknell's Crane's-bill	*Geranium bicknellii*	4 Secure	S3
Blue Vervain	*Verbena hastata*	4 Secure	S3
Houghton's Sedge	*Carex houghtoniana*	Sensitive	S2S3
Large Purple Fringed Orchid	*Platanthera grandiflora*	4 Secure	S3
Yellow Ladies'-tresses	*Spiranthes ochroleuca*	4 Secure	S3

As shown above, one plant species is listed as sensitive under NSDLF's ranking system in Nova Scotia: Houghton's sedge (*Carex houghtoniana).* Houghton's sedge had 17 occurrences along the RoW, with multiple plants growing at each occurrence.

Under the AC CDC S-Ranking system, Houghton's sedge is listed as S2S3 (Imperiled, Vulnerable) and the remaining rare/uncommon species (Bicknell's Crane's-bill, Blue Vervain, Large Purple Fringed Orchid, Yellow Ladies'-tresses) are listed as S3 (Vulnerable).

Table 4: AC CDC Provincial Ranks

[redacted]	**Imperiled** - imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
[redacted]	**Vulnerable** - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

Retrieved from, http://www.accdc.com/en/rank-definitions.html

These Rare and Uncommon vascular plants are not listed under the *Nova Scotia Endangered Species Act* (NSESA) or the *Species at Risk Act* (SARA) and therefore are not required to be protected for the proposed pipeline alignment as shown on the Environmentally Sensitive Features Drawing: Appendix C.1. If the RoW changes, supplemental rare plant surveys may be required.

EA Approval Condition 7.4 indicates that the Approval Holder must use natural species to re-vegetate exposed soil in forest and riparian zones.

Mitigation measures and best management practices for all phases of the project are included throughout the EPP. Specific mitigation measures for rare and uncommon vegetation include:

a) Complete supplemental rare plant surveys in the event the RoW changes from what is indicated in Appendix C.1; and

b) Exclude the use of seed mixes with invasive species or noxious weeds.

3.4 RARE AND SENSITIVE BIRDS

Breeding bird surveys were conducted within the study corridor in June/July 2007, 2008 and 2015 to identify avifauna along the RoW. Three bird species listed as Threatened under SARA were identified during the field surveys, including Canada Warbler, Olive-sided Flycatcher and Common Nighthawk. It is important to note that the Canada Warbler is listed as Endangered under the *Nova Scotia Endangered Species Act* (NSESA).

During the field surveys, the Common Nighthawk had four occurrences near, or in, wetlands 1, 5, 8 and 18 (Environmentally Sensitive Features – Appendix C.1). The Canada Warbler had 10 occurrences near wetlands 3, 6, 8, 11, 15, 16, 18 and 19 (2 sightings), as well as ~200m north of the Stewiacke River (Environmentally Sensitive Features – Appendix C.1). The Olive-sided Flycatcher had seven occurrences near wetland 18 (three sightings) and wetland 1 (four sightings).

Mitigation measures and best management practices for all phases of the project are included in various sections of the EPP. Specific mitigation measures for rare and sensitive birds include:

a) Clearing, deforestation, and grubbing must be conducted between September 1st and March 30th in order to minimize impacts on breeding birds that may include endangered and threatened species listed under the *SARA* and/ or *NSESA*; and

b) If site preparation activities occur outside of the September 1st and March 30th window, the Approval Holder must prepare and implement a monitoring and mitigation plan for breeding activity (i.e. nesting) pursuant to the *Migratory Bird Convention Act*, in consultation with NSDLF and the Canadian Wildlife Service.

3.5 AMPHIBIANS AND REPTILES

Field surveys were conducted by Stantec in June 2007 and August 2008 for rare or uncommon reptiles and amphibians. One adult Wood Turtle was observed during the June 2008 field studies outside of the Study Corridor in a hay field near the banks of the Little River (Environmentally Sensitive Features – Appendix C.1). Both the Little River and the Stewiacke River are known to provide habitat for the Wood Turtle which is listed as Threatened under the *SARA*.

The portion of the Stewiacke River located within the study Corridor has valuable winter hibernation habitat for the wood turtles, but does not have good nesting habitat due to the steep mud banks along the RoW crossing section. Even though no wood turtles were discovered at locations other than the Little River during Stantec's field surveys, the species may be present along tributaries of Little River (outside of the study corridor and gas pipeline RoW) and Stewiacke River, predominantly in the summer months.

Prior to construction, WSP will conduct a wood turtle nesting survey as per Condition 7.6 of the EA Approval. This survey will be conducted within the wood turtle nesting period (June 10th to 30th) along watercourse crossings that have the potential for wood turtle nesting habitat (See Environmentally Sensitive Features - Appendix C.1). Currently, Nova Scotia does not have a standardized methodology for surveying wood turtle populations. Prior to conducting the surveys, NSDLF Wildlife Division will be consulted to confirm survey methodologies.

Even if no wood turtles are found during the survey, the following precautionary mitigative measures and best management practices will be implemented during construction in the three areas identified as potential nesting habitats:

a) Silt fencing will be installed for erosion and sediment control measures and to provide a barrier to prevent wood turtle nesting and foraging within the construction zone;

b) All wood turtles found or observed must be reported immediately to NSDLF's Wildlife Division and the Regional Biologist;

c) If a wood turtle is discovered, construction in the area will be temporarily halted until the Environmental Inspector has reviewed the situation with NSDLF to confirm appropriate mitigation measures have been employed;

d) It is likely that the NSDLF Regional Biologist will recommend that the Environmental Inspector or contractor, who has undergone education on handling turtles, pick up and move the turtle off site. The turtle will be moved along the same habitat corridor and in the direction of travel the turtle was originally oriented. Scientific studies have shown that moving the wood turtles 100 m to 400 m from the original site where they were found should not be overly disruptive to them; and

e) Construction crews will be provided with environmental awareness training and will be educated on the protection of wildlife, including herptiles.

3.6 ARCHAEOLOGICAL FEATURES

An Archeological Impact Assessment (ARIA) was conducted including archival research, examination of archeological files, air photo interpretation, and site surveys. Archeological site surveys were conducted in July 2006 and May 2011 for the Project by a qualified archeologist. The site surveys found high potential for First Nation's archaeological resources where the proposed pipeline crosses the Stewiacke River and as such, was subject to subsequent subsurface (shovel) testing. Shovel testing was conducted at the proposed RoW and the results were negative; thus no further assessment was recommended. The ARIA report recommended the proposed project proceed as planned without the need for further archaeology assessment.

Sections of proposed pipeline re-alignment options were reviewed and are reflected in the final pipeline alignment shown in Figure C-1, Appendix C. However, as a result of the proposed re-routing, additional archaeological screening and field reconnaissance was completed in December 2018 along the pipeline re-alignments. The assessment identified two areas of high archaeological potential along the proposed Re-Route #1 alignment which are subject to shovel testing prior to any ground disturbance. The additional work is tentatively scheduled for the spring of 2019. Following completion of the shovel testing, this report will be updated to reflect the findings.

In the event that an archeological artifact is discovered during construction activity, a qualified archeologist will be notified and construction in the area halted until approved by the archeologist (see Contingency Plan - Heritage and Archaeological Discovery in Section 6.12).

3.7 STEWIACKE RIVER WILDERNESS AREA

Alton intends to comply with the EA Approval Condition 4.1 and will develop and implement a compensation plan for potential impacts to the Stewiacke River Wilderness Area (area outlined Environmentally Sensitive Features: Appendix C-1) that will be approved and reviewed by NSE. Prior to any construction within the proposed Stewiacke River Wilderness Area, Alton will obtain an approval for the work and provide notification to the Minister of Environment as required by the *Wilderness Areas Protection Act.*

3.8 STEWIACKE WATERSHED PROTECTED WATER AREA

Alton will comply with Condition 5.3 of the EA Approval stating, "Any environmental impacts on the public water supply for the Town of Stewiacke must be corrected by the Approval Holder to the satisfaction of NSE".

Three watercourse crossings, WC9 (formally GL-15), WC10 and WC11 are located within the Stewiacke Watershed Protected Water Area. A Water Supply Protection Plan prepared by Stantec contains contingency planning and monitoring for the Public and Private Water Supply in the Stewiacke Watershed Protected Water Area (See Appendix C-2).

4 GENERAL ENVIRONMENTAL PRACTICES

The general Best Management Practices (BMPs) and mitigation measures provided in the following sections have been developed for the Project and are not specific to any one particular activity. These measures must be applied, as appropriate, throughout all phases of the Project.

4.1 GENERAL ENVIRONMENTAL REQUIREMENTS

The following BMPs were developed based on provincial regulations, industry standards, professional expertise, and local knowledge.

These BMPs are applicable to all activities associated with the Project.

a) Prior to initiating activities, all permits and approvals from federal, provincial, and municipal agencies are to be acquired for the area of work;

b) All activities to be undertaken in accordance with all applicable conditions, permits, and approvals received from federal, provincial, and municipal authorities;

c) The Contractor will ensure all of the activities are contained within the approved working limits and access roads. The Company shall clearly define the working limits (*i.e.*, RoW, TWA and buffer zones) to prevent offsite trespassing;

d) The Company and Contractor shall limit the area of disturbance to only what is necessary for construction and operation activity;

e) Nearby landowners and the public shall be notified of the schedule of construction or maintenance activities taking place, as required;

f) In the event that construction equipment (*e.g.*, tracked vehicles, swamp mats) is transported into Nova Scotia, it shall be thoroughly cleaned and inspected prior to transport so no vegetative matter or seeds are attached to the equipment. This may be achieved through high pressure water wash prior to transport;

g) The Contractor will inspect and clean construction equipment immediately following construction in areas found to support invasive species;

h) All equipment used for the Project must be in good working order and free from leaks. Any minor drips from equipment will be managed through the use of "absorbent pads", until repairs are conducted (as soon as practical);

i) No maintenance or cleaning of mobile construction equipment will be carried out within 30 m of a watercourse or wetland. The Contractor will ensure refueling activities are monitored at all times; vehicles must not be left unattended by fueling operations personnel while being refueled. All containers, hoses, and nozzles will be free of leaks. All fuel nozzles will be equipped with functional automatic shut-offs;

j) Refueling of mobile construction equipment will not be carried out within 30 m of any watercourse or wetland;

k) All vehicles and heavy equipment on the site shall be equipped with a spill kit. A supply of emergency response equipment will be maintained on site by the Contractor, including absorbent materials, oil pans, and Material Safety Data Sheets (MSDS);

l) All reasonable precautions will be taken by the Contractor to minimize spills and accidental releases of fuel and hydraulic fluid from vehicles and equipment. Spills will be managed in accordance with the Contingency Plan - Spills in Section 6.4;

m) No firearms are permitted on the site. Furthermore, hunting by Company or Contractor personnel will be forbidden during construction, operation or maintenance;

n) No harassment of wildlife will be tolerated;

o) The Company and Contractor will ensure no pets are allowed on or near the work site;

p) All waste (including food waste) shall be properly contained and disposed of on a regular basis at an approved facility;

q) All vehicles and equipment will be operated at appropriate speeds; and

r) Fording of watercourses shall be avoided unless required to fulfill an element of an Emergency Response Plan.

4.2 EROSION CONTROL

Prior to all phases of clearing, grubbing and construction, erosion and sediment control measures (ESC) must be in place. The purpose of an erosion and sediment control plan is to provide clear guidance to the Contractors on the methods that give maximum environmental protection to lands, watercourses, and infrastructure components during construction. Long-term RoW maintenance requirements are also reduced with the use of proper erosion and sediment controls.

It is the responsibility of the Contractor to implement all erosion and sediment control measures, as well as, ensure the necessary erosion and sediment control materials are on site and readily available at all times. During and after construction, inspections of the erosion and sediment control measures will be conducted regularly, and specifically after storm events until revegetation is sufficiently established to effectively prevent erosion.

Additional measures may be required beyond those included in the site specific erosion and sediment control plan for this Project, at the contractor's discretion. Additional BMPs for site-specific preparation activities are included in Section 5.

The general principles listed below shall be followed to minimize soil erosion:

a) Minimize the area and duration of exposure to potential erosion;

b) Disturbed areas will be stabilized as soon as possible;

c) Grading work within 30 m of watercourses shall be avoided, when practical, during or immediately before any forecasted heavy precipitation events;

d) Sediment control structures are to be used to prevent sediment from leaving the site;

e) Runoff velocities are to be kept low with short slopes and shallow gradients; and

f) A thorough follow-up and monitoring/maintenance program will be implemented.

For clearing activities, erosion and sediment control measures may include:

a) Diversion of clean surface water away from disturbed areas;

b) Limiting activities in wet areas and/or use of brush matting or log corduroy to reduce ground disturbance;

c) Repair of ruts that may result in sediment laden water draining to a watercourse or wetland; and

d) Use of mulch or brush matting to stabilize exposed erodible soil.

The removal of stumps and roots (grubbing); the removal of topsoil (stripping); and cuts and fills of soil and rock with associated drainage control (grading) lead to the highest risk of erosion and sediment loss as they cause the greatest disturbance to the terrain and exposure of soil. The period immediately following these activities will be the most critical and the application of mitigation measures is required to minimize erosion and sediment loss. For site preparation activities, erosion and sediment control measures may include:

a) Preservation of topsoil/organic material (see Section 5.1.4);

b) Diversion of clean surface water off the RoW away from disturbed areas;

c) Grading of grubbed and stripped soils to divert runoff into existing vegetated areas and away from watercourses/wetlands;

d) Grading of grubbed and stripped soils in a manner that will provide drainage to an outlet downslope (i.e., positive drainage) and prevent ponding of water;

e) Grading of grubbed and stripped soils in a manner that will encourage sheet flow and prevent the concentration of site runoff into rills and gullies;

f) Grading of grubbed and stripped soils in a manner that will roughen surfaces to reduce flow velocity, thereby encouraging sediment deposition and water infiltration; and

g) Installation of typical erosion and sediment control structures (e.g., sediment barriers, check dams, diversion berms, rip rap, mulch).

Erosion and sediment controls may be required along access roads to minimize any potential downstream effects that may be caused by the use of Company and Contractor vehicles or equipment. Vehicles used during clearing and site preparation may result in erosion along the road surface and ditches, leading to potential sedimentation of any watercourses that may be crossed by the road. Controls used may include:

a) Grading of road surface;

b) Capping road surface with clean rock or gravel;

c) Installation of sediment barriers or checks dams in ditches to control runoff; and

d) Stabilization of ditches with rock, mulch or other suitable material.

It is the Contractors responsibility for maintaining the access roads so that after construction is completed, the roads are left in the same or better condition as pre-construction.

The Contractor is responsible for installing, maintaining, and monitoring all ESC measures until the completion of the contract. However, the Environmental Inspector is available to advise the Contractor on protection measures, if necessary. The Contractor and Environmental Inspector will conduct regular inspections. Weather reports and forecasts for heavy precipitation events or potential thaw event will be monitored daily by the Contractor and Environmental Inspector, and if necessary they will be prepared to install erosion control measures. In the event of severe weather conditions, the Environmental Inspector will advise the Construction Supervisor to halt or restrict work.

4.3 DUST CONTROL

Excessive dust may be generated along the RoW and access roads during periods of heavy construction activity and dry conditions, which could affect the local environment and construction safety. At the discretion of the Contractor, the practices noted below may be implemented to minimize dust generation during construction. The Environmental Inspector has the right to direct the Contractor to implement further mitigation measures if they deem the current measures are not sufficient.

a) Water will be used as a dust suppressant by the Contractor on the RoW or access roads as required. However if the standard dust suppressant methods do not prove effective (e.g., during periods of high winds), construction activities may be modified to protect the health and safety of Project workers and the public in areas adjacent to the RoW;

b) If a dust suppressant other than water is required (i.e, calcium chloride or tree lignin based suppressants), it will not be used within 30 m of a watercourse or wetland. If a chloride-based dust suppressant is used, Environment Canada's Best Practices for the Use and Storage of Chloride-Based Dust Suppressants will be reviewed and implemented where they apply;

c) The Contractor shall ensure watering for dust control does not result in the excessive formation of puddles, rutting by equipment or vehicles, tracking of mud onto roads, or siltation of watercourses; and

d) Local road authorities or landowners will be consulted prior to application of dust suppressants other than water on existing access roads.

4.4 WET SOIL SHUTDOWN

Heavy precipitation can disturb the forest duff layer or forest organic layers and may affect soil structure integrity and, by extension,soil productivity. Construction activities that involve stockpiling or spreading these soils (e.g., grade and clean-up) may be temporarily halted during excessively wet soil conditions. The following practices shall be implemented to minimize potential soil structure damage due to wet soil conditions during construction.

a) In unstable wet soils, where practical, the travelled portion of the RoW will be stabilized with brush mats, log corduroy or grade material and/or construction equipment with low ground pressure tires;

b) Soil conditions will be closely monitored by the Environmental Inspector during periods of inclement weather. The Environmental Inspector will advise the Site Representative and/or Project Manager areas where construction activities should be suspended or restricted, as based on site conditions. The intended construction activities and soil types shall be considered in determining work stoppages during wet soil conditions, as different activities and soils have varying potential for adverse environmental effects under such conditions;

c) The Project Manager shall suspend or restrict work in the areas recommended by the Site Representative and/or the Environmental Inspector when, in their opinion, further construction may affect soil structure to the point where future productivity may be compromised. This decision will be based on the criteria listed below. The decision to re-commence construction activities after a wet soil shutdown will be made by the Project Manager;

d) The Contractor shall notify all supervisory personnel and sub-contractors of suspended work;

e) If construction activities must proceed during wet soil conditions, additional mitigation measures may be implemented to help ensure soil structure is maintained (e.g., measures to reduce the potential for compaction); and

f) A forecasted extreme rainfall event over a relatively short period of time may necessitate a wet soil shutdown or restricted work, as determined by the Environmental Inspector.

Decision-making Criteria for Wet Soil Shutdown

The decision to temporarily halt construction during wet soil conditions may be determined using the following criteria and indicators as a guide.

i. Forecasted rain and drying weather;

ii. Whether topsoil/duff layer has been removed;

iii. Type of soil in area (i.e., work typically can continue on coarse granular soils and rock under wet conditions);

iv. Type of equipment and nature of the construction activities;

v. Potential for rutting of topsoil to the extent that mixing of soil horizons may occur;

vi. Availability and effectiveness of mitigation measures; and

vii. Schedule considerations.

4.5 NOISE MANAGEMENT

Most noise emissions associated with site preparation and project construction activities will be intermittent. Equipment is operated on an as needed basis and mostly during daylight hours. The contractor shall comply with Provincial regulations and any applicable municipal by-laws which prescribe limitations on work related to the timing of construction activities. Work shall be completed by the contractor without causing excessive noise to the environment during construction activities and remaining in compliance with applicable legislation, including Provincial regulations and municipal by-laws.

BMPs that could be used to avoid noise complaints by residents are:

a) Good noise management practices, such as avoiding use of: loud radios, excessive shouting, equipment door slamming, etc.;
b) Limiting truck back-up alarms to an absolute minimum would be highly desirable; and
c) Installation of engine mufflers and noise baffles may be required for construction that involves stationary heavy equipment, such as large size directional drilling equipment.

Where noise becomes a nuisance to nearby residences or other noise receptors, Alton may request that the Contractor alter the construction schedule or erect temporary noise barriers based on consultation with affected receptors to determine effective mitigation. Alton may elect to monitor noise in areas where sensitive receptors have been identified. Results of monitoring will be shared with the Contractor to inform further amendments to their mitigation practices if necessary.

4.6 WASTE MANAGEMENT PLAN

The site preparation and construction activities will produce limited non-hazardous or solid wastes including; packaging and domestic waste. Waste will be collected and stored until such time that it can be transported to an appropriate recycling facility or a provincially-approved waste disposal facility.

No storage of any hazardous materials is expected on-site during construction activities. All used oil and filters will be removed from the site and disposed of in an appropriate manner.

The following practices will be followed for waste management (grubbing material, brush, and boulders are not considered "waste" in the context of this section).

a) Waste materials will be recycled to the greatest extent practical. Recyclable materials and materials banned from landfills (paper, cardboard, drink containers, wood, scrap steel, paint, metal and tires) will be collected separately for recycling;
b) No wastes shall be disposed of in the pipeline trench;
c) There shall be no burning of wastes generated on the site;
d) Wastes considered hazardous shall be collected and disposed of in accordance with applicable local and provincial regulatory requirements;
e) Liquid wastes from construction crews, including sewage and grey water, shall be collected and disposed of through a licenced contract or by the Contractor in a manner consistent with applicable local and provincial standards;
f) Each Contractor crew will keep sufficient waste containers on hand to temporarily store wastes until they are transported for disposal at an approved waste management facility;
g) Non-recyclable, non-hazardous construction wastes shall be removed from site on an as required basis for disposal at an approved waste disposal site;

h) Used oil, filters, grease cartridges, and other products of equipment maintenance shall be collected and disposed of at an approved waste management facility; and

i) Rags used in equipment maintenance and other potentially combustible materials shall be kept in a container separate from the above materials until the combustible material can be removed from the site for disposal.

4.7 STORAGE, HANDLING, TRANSFER OF POLS AND OTHER HAZARDOUS MATERIALS

All reasonable precautions to prevent and minimize the spillage, misplacement, or loss of fuels and other hazardous materials shall be taken. All Acts and Regulations pertaining to special substances shall be followed. Where practical, the delivery, storage, use, and disposal of these hazardous materials shall be handled only by trained personnel in accordance with government laws and regulations.

Alton and the drilling contractor (required for HDD) will ensure that the required permitting for the storage of fuel is attained prior to the delivery of fuel to the site and the start of drilling.

Under contract by a tanker truck, refuelling of equipment will be conducted on a regular basis, onsite. Refuelling activities will not be conducted within 30 m of any watercourse or wetland, and equipment operators will remain with the equipment at all times during refuelling.

In the event of a spill, follow the procedures detailed in Section 6.4, Contingency Plan – Spills.

Where practical, the following precautions will be taken:

a) All temporary storage facilities for petroleum should meet federal and provincial regulations and guidelines;

b) Onsite machinery and potential pollutants should be stored in an area above flood water limits;

c) The Contractor shall ensure construction crews are trained in Workplace Hazardous Materials Information System (WHMIS) and are aware of contingency plans in advance of potential spills of hazardous materials;

d) Labelling of POLs and hazardous materials shall comply with WHMIS;

e) Fueling and lubrication of construction equipment will be carried out in a manner that minimizes the potential for spills where practical; including undertaking refueling and maintenance activities on level terrain;

f) Oil changes, refueling and lubricating of mobile construction equipment will be at least 30 m from watercourses or wetlands;

g) Hydraulic, fuel and lubrication systems of equipment used during watercourse crossings and construction in wetlands will be inspected by the Contractor to ensure the systems are in good working order and free of leaks prior to entering the watercourse or wetland;

h) Stained soil resulting from the use of chemicals or fuels shall be cleaned-up and disposed of prior to leaving the work area; and

i) Waste oils and lubricants will be retained in a closed container, and disposed of in an environmentally acceptable manner.

5 SITE-SPECIFIC ACTIVITIES

5.1 RIGHT OF WAY PREPARATION

A preferred 20 m right-of-way (referred to as the Proposed RoW) has been selected within the Study Corridor based on refined constraint mapping and various additional assessments. The proposed RoW was selected based on field surveys, discussions with property owners and other stakeholders.

Proposed Project construction activities will include clearing, grubbing, topsoil stripping and grading, trenching, pipe installation, boring, and clean-up; and RoW restoration and will be similar to other gas transmission pipeline projects in Nova Scotia. Maintenance activities will be limited to the RoW and will include regular inspections and testing.

The pipeline RoW will traverse and intersect existing public, private and forestry roads and approximately ten watercourse crossings and ten wetlands. Nine of the ten watercourse crossings are anticipated to be dry crossings (dam and pump technique). The Stewiacke River Crossing (WC-2) is anticipated to be a trenchless crossing (i.e., HDD) which will greatly reduce any potential adverse effects to the watercourse and surrounding area.

Access to the RoW for construction is anticipated to be from existing roads and it is unlikely that new access roads will be built. However, if required, access roads will be built as temporary access routes and applicable local or provincial standards or guidelines will be considered. Environmental protection measures will be applied in the same manner as those for the RoW construction to avoid or reduce potential adverse effects from new road construction.

All utilities (e.g., existing pipelines, telephone lines, power lines) will be located or 'daylighted' to avoid damage to the utility and hazards to construction workers.

5.1.1 CLEARING

The removal of trees from the RoW and junction site at the M&NE Halifax Lateral is required to facilitate site preparation and construction activities. Clearing activities will utilize both heavy and light equipment for the cutting and removal of trees and brush.

Erosion and subsequent sedimentation of sensitive habitats (i.e., watercourses and wetlands) has the potential to occur with the disruption of the vegetative mat from the use of heavy equipment. A general Erosion and Sediment Control Plan will be developed and included with the Construction Drawings once they are completed.

Clearing activities including removal of trees and shrubs and the associated noise may disrupt the use of the land and habitat by wildlife during sensitive life cycle periods. There is also the potential for accidental spills and leaks during clearing activities (see Contingency Plan - Spills in Section 6.13).

Clearing crews should only proceed after the property has been delineated and the environmentally-sensitive features and any safety hazards (i.e., steep slopes) have been identified/flagged. Areas to be cleared will be indicated on the Plans or designated by the Construction Supervisor.

In accordance with landowner agreements and/or contract specifications felled merchantable timber will be temporarily stockpiled on the property and removed. Material which is not suitable for sale or use during construction will be chipped, and will be windrowed along the edge of the RoW, temporarily stored and reused for land stabilization, or hauled to an approved offsite disposal facility.

The following BMPs and mitigation measures will be employed during clearing activities:

a) To minimize ground disturbance and the disruption of breeding birds, that may include endangered or threatened species listed under the *Species at Risk Act* and/or the *Endangered Species Act*, clearing shall be undertaken between September 1st and March 31th, to the extent practical;

b) Should clearing be required during bird breeding season (April 1st to August 31st), NSE must approve the Clearing Contingency Plan in Section 6.13;

c) The Company shall clearly define the working limits (i.e., limits of clearing for the 20 m RoW, and temporary work areas) to prevent off-site trespassing. The Contractor will ensure all of its activities are contained within the approved working limits and access roads;

d) The Company and Contractor shall limit the area of disturbance to that which is absolutely necessary for construction;

e) A minimum 30 m vegetated buffer zone will be maintained where feasible around wetlands that will not be directly impacted by the Project;

f) For clearing, a 30 m buffer zone will be established for all watercourse crossings within which clearing will either be conducted by hand or by equipment reaching in from outside the buffer zone;

g) Where access across a watercourse is required for clearing, the Contractor will enter the buffer zone on the travel side of the RoW only, and will install temporary access as per Section 5.1.3 and in accordance with all conditions of approval from regulatory agencies. If RoW conditions on the travel side are unstable (i.e., too soft or wet), then the Contractor will cross at the most stable location (i.e., highest and driest);

h) Where practical, during clearing, all vehicles and equipment shall either be tracked or will use bogie tracks or high flotation tires, properly sized for the vehicle. When the Construction Supervisor deems that ground conditions are not suitable for machinery use, hand clearing will be recommended;

i) During clearing activities, trees shall be felled towards the RoW where safe to do so. The Contractor will not fell trees across a watercourse. Any trees that are inadvertently felled into a watercourse will be removed immediately;

j) The Contractor shall avoid long skids of timber on steep slopes adjacent to watercourses;

k) The Contractor shall remove trees, debris, or soil inadvertently deposited within the buffer zone or annual high water mark of watercourses in a manner that minimizes disturbance of the bed and banks;

l) Where practical, brush mats or swamp mats may be used to protect the surface where required;

m) Damage to the vegetative mat in areas that could result in erosion and sedimentation of a watercourse or wetland that occurs during clearing will be assessed by the Company. The Contractor will repair the damage as required (e.g., repair ruts, mulch);

n) Erosion and sediment control structures shall be installed and maintained by the Contractor where required and as specified by the Environmental Inspector or Construction Supervisor (e.g., mulching, check dams, sediment control fence);

o) Chipped material shall be left in place to cover the ground and minimize ground disturbance within buffer zones;

p) Any burning of vegetative debris may require permits from NSE and/or NSDLF. If required, the Company will obtain and follow the conditions of such permits; and

q) Spills shall be managed in accordance with the Contingency Plan - Spills in Section 6.4.

5.1.2 GRUBBING

In preparation for grading and pipeline construction, the RoW must be grubbed, which involves the removal of tree stumps and roots, shrubs, and brush from the area. With the landowners permission the grubbed material will be windrowed along the edge of the RoW, or removed and disposed of at an approved location.

Grubbing utilizes heavy equipment to remove the vegetative mat along the RoW which can create the potential for erosion and subsequent sedimentation of watercourses and wetlands. Wildlife may be disrupted by grubbing activities and the noise associated with heavy equipment operation particularly breeding and nesting birds, during

sensitive life cycle periods. Grubbing can also create the potential for excessive loss of topsoil, and the potential for accidental spills and leaks from the fuelling and operation of heavy equipment.

The following BMPs and mitigative measures will be employed during grubbing activities:

a) Employ applicable BMPs and mitigative measures provided in Section 4 (General Environmental Practices), Section 3.1.1 (Wetlands), and Section 3.2.1 (Watercourses);

b) If grubbing is required during the breeding bird season (*i.e.*, the breeding season for most birds is April 1 to August 31) the following will apply. To minimize the disruption of breeding and nesting birds, the Company shall identify any active nests on the RoW no more than one week prior to grubbing. Activities which could impact the young will not occur within a 50 m buffer zone surrounding the nest while it is active and equipment will not pass closer than a 10 m buffer zone surrounding the nest. Also, prior to undertaking grubbing activities during the sensitive season, the Company will consult with NSE and the Canadian Wildlife Service (CWS) to discuss other opportunities and measures regarding compliance with the *Migratory Birds Convention Act*;

c) Grubbing shall be limited to cleared areas including the RoW and temporary work areas. Temporary work areas to be used solely for the storage of timber will not be grubbed;

d) To the extent practical, the Contractor will minimize the loss of topsoil during grubbing (*e.g.*, allow grubbed material to dry and shaking topsoil from stumps and roots prior to disposal, minimize rutting and mixing of topsoil and subsoil);

e) Grubbing within the 30 m buffer zone of a watercourse will be delayed until necessary for the purpose of access and pipeline installation;

f) When required the Contractor will only grub within the watercourse buffer zones where necessary (*i.e.*, limit to trench width to the extent practical);

g) The Contractor shall leave an undisturbed organic mat on the travel side approach to watercourses to minimize the potential for introduction of sediment into the watercourse/wetland unless grading is necessary for bridge or culvert installation;

h) Upon grubbing of the RoW near the 30 m buffer zone of watercourses (*i.e.*, once erodible soils have been exposed), a sediment control fence will be installed along the edge of the buffer zone. The silt fence will be removed from the travel side once access across the watercourse is installed. The silt fence will be removed from the ditch side prior to installation of the pipeline across the watercourse and replaced after the pipe is installed;

i) Additional temporary erosion and sediment control measures may be required until such time at the grading crew commences and installs the required generic measures. The Contractor will implement such requirements as identified by the Company;

j) The Contractor will direct surface water along approach slopes to watercourses off the RoW and away from the watercourse;

k) Grubbed material shall be windrowed along the edge of the RoW (in accordance with landowner agreements), or disposed of at an approved location outside of the RoW or at a disposal facility. Any burning of vegetative debris may require permits from NSE and/or NSDLF. If required, the Company shall obtain and follow the conditions of such permits; and

l) Spills shall be managed in accordance with the Contingency Plan - Spills in Section 6.4.

5.1.3 TEMPORARY WATERCOURSE CROSSINGS

The installation of temporary bridges/crossing structures across watercourses (if required) would likely involve the use of construction equipment in the 30 m buffer zone along the banks of watercourses, there is potential for sedimentation of the watercourse through rutting and disturbance of the topsoil. Construction of the approaches to the crossings may also create a conduit for sediment to enter the watercourse. Improperly sized or installed crossing structures could affect watercourse flow. There is also the potential for accidental releases and leaks of fuel and/or

hydraulic fluid from the operation of heavy equipment (see Contingency Plan - Spills in Section 6.4). Such accidental releases of sediment laden water or hydrocarbons could enter a watercourse and affect water quality and fish.

If temporary watercourse crossing structures are required, NSE will be consulted to determine the appropriate structure required, a structure will be chosen/constructed for each specific crossing site with the intent for minimal environmental impact (i.e. will completely span the entire watercourse). If it is determined that a Watercourse alteration notification/application is required, this will be completed and submitted to NSE to comply with the Nova Scotia Watercourse Alteration Standard.

5.1.4 GRADING AND TOPSOIL REMOVAL

Along the width of the grubbed RoW the topsoil/duff layer will be removed prior to grading and will be stored along the edge of the RoW. During the clean-up and restoration phase the topsoil/duff layer will be replaced.

In order to facilitate the safe travel of construction equipment and pipeline installation grading is required, which involves the contouring and shaping of the RoW. Existing grade materials will be used where available to construct an access road along the RoW, if suitable materials are unavailable (within the RoW), aggregate resources from provincially-approved sources/supplies will be used. Any excess material will temporarily be stored on the RoW and/or in approved TWAs and replaced during the clean-up and restoration phase.

The grading crews will install approaches to road crossings, installing culverts in ditches to maintain surface flow and also install approaches to and access across watercourses.

Loss of topsoil, mixing of subsoil and topsoil, compaction, and loss of soil capability are the most common environmental effects on topsoil and soil productivity. To maintain current land use post-construction, it is important to strip and store topsoil properly. Long-term stabilization of the RoW is normally achieved by revegetation. The success of the revegetation will depend on the amount and quality of topsoil.

The grading crews will work within the watercourse buffer zones and across watercourses, further exposing erodible soils, creating potential for erosion and sedimentation. The grading can also affect the natural drainage patterns. It is not anticipated that blasting will be needed to remove grade rock.

Additional issues associated with grading include, the loss of access to property by landowners and wildlife and the potential for accidental spills and leaks from the fuelling and operation of heavy equipment.

The following BMPs and mitigative measures shall be employed during grading and topsoil stripping activities:

a) Employ applicable BMPs provided in Section 4 (General Environmental Practices), Section 3.1.1 (Wetlands), and Section 3.2.1 (Watercourses);

b) The Contractor will strip the topsoil/duff layer to an appropriate thickness except in areas withstanding water or heavily inundated soils, or where no topsoil layer is evident or where it exceeds the depth of the trench;

c) As with grubbing, topsoil stripping shall be limited to the trench line in watercourse buffer zones, to the extent practical;

d) Topsoil/duff shall be pushed to the edge of the RoW or site and stored there until the clean-up and restoration phase;

e) Topsoil /duff shall be stripped and stored in such a way as to minimize the mixing of topsoil with subsurface soils. To the extent practical, a 1 m separation will be maintained between piles;

f) Topsoil stripping and/or replacement shall be suspended during excessive wet weather or high winds to prevent loss of topsoil;

g) The Contractor shall leave gaps in the topsoil and soil piles at appropriate intervals to provide for natural drainage of water, property access to the landowner (where required), and wildlife passage;

h) The Contractor will not use topsoil for construction purposes (e.g., pipeline padding, backfill or trench breakers);

i) In any location where the topsoil has to be stored for extended periods, or over winter, it should be protected from wind and water erosion by seeding and covering it with mulch;

j) Grading will be limited to the extent required to enable the safe and efficient operation of construction equipment, particularly on approach slopes to watercourses;

k) As with grubbing, grading within the buffer zone of a watercourse will be delayed until just prior to construction of the crossing;

l) Grade material will be stored along the RoW, or in approved temporary work areas a minimum of 30 m from the bank of a watercourse. Graded material shall only be stored on steep slopes or within 30 m of a watercourse when no other storage location is available;

m) Grade crews will install access across watercourses in accordance with Section 5.1.3 of this EPP;

n) If required, the Contractor shall install culverts or temporary bridges at road crossings to maintain water flow in ditches;

o) To the extent practical, the Contractor will direct surface flow away from disturbed areas;

p) The Contractor shall install culverts to maintain drainage flowing across the RoW and site;

q) The Contractor shall divert site runoff into existing vegetated areas and away from watercourses. Furthermore, site drainage will be directed downslope to prevent the ponding of water;

r) Grading shall be conducted in a manner that encourages sheet flow and prevent the concentration of site runoff into rills and gullies;

s) Grading will be conducted in a manner that leaves roughened surfaces to reduce flow velocity thereby encouraging sediment deposition and water infiltration, particularly on approach slopes to watercourses and wetlands;

t) At a minimum, the Contractor shall implement the generic erosion and sedimentation control measures that are specified in Section 4.2; and

u) Spills will be managed in accordance with the Contingency Plan - Spills in Section 6.4.

5.1.5 TRENCHING

In order to install the pipe below grade, a trench is excavated using conventional backhoes or a wheel ditcher to a sufficient depth to attain the necessary cover over the pipe. The pipeline cover in general will be 1 m wide and 1.5 m deep, except where site-specific conditions dictate that additional cover is required, considering requirements for protecting public safety and pipeline integrity. Generally, the width of the trench will be twice the diameter of the pipeline.

Where practical, the trenching will take place before the pipe stringing and following the access established by the grade crew along the RoW.

There are several issues associated with trenching which include; public safety, erosion along the trench, management of trench water, alteration of the hydraulic properties of watercourses (i.e., dewatering), limiting property access to landowners and limiting wildlife movement. Trenching has the potential to affect shallow dug wells and springs adjacent to the RoW. Issues and mitigation related to trenching through watercourses are described in Sections 5.1.8 (Dry Watercourse Crossings) and mitigation related to dewatering of the trench is mentioned in Section 5.1.7 (Trench Dewatering).

Similar to most activities, there is the potential for accidental releases of fuel or hydraulic fluid from the operation of construction vehicles and heavy equipment (see Contingency Plan - Spills in Section 6.4).

The following BMPs and mitigation measures will be employed during trenching activities:

a) The Company and Contractor will employ applicable BMPs provided in Section 4 (General Environmental Practices), Section 3.1.1 (Wetlands), and Section 3.2.1 (Watercourses);

b) The Contractor shall remove material from the trench and store it in windrows along the edge of the RoW, adjacent to the topsoil stockpiles;

c) The Contractor shall maintain separation between trench spoil and topsoil piles. To the extent practical, a 1 m separation will be maintained. This separation is especially important in agricultural areas;

d) Where space is limited, to the extent practical the Contractor will maintain separation between piles by overlapping the topsoil pile with fabric (e.g., silt fence, geotechnical material, tarps) or other suitable material (e.g., a thick layer of straw) to minimize the potential for mixing and/or allow workers to easily discern the different soils during clean-up activities;

e) To minimize environmental effects to landowners and businesses, laneways and driveways shall be left in place as long as possible or re-established with soft plugs or other means;

f) In agricultural areas, the Contractor shall flag and repair tiles that are cut during the trench excavation as quickly as possible;

g) The Company shall minimize any temporary disruptions to local business operations. This may require alternate construction techniques and/or modified scheduling of activities (i.e., time trenching and pipeline construction to avoid peak traffic hours);

h) To the extent practical, the Contractor will schedule construction activities to minimize the length of time that a trench is left open;

i) The Contractor shall erect safety fencing around open pits and trenches at road crossings and other high risk areas;

j) To the extent practical, the Contractor shall stop trenching short of the 30 m buffer of a watercourse and will leave trench plugs in the trench at water crossing approach areas to avoid potential sediment-laden trench water from entering watercourses;

k) To the extent practical, the Contractor will leave trench plugs and install trench breakers where required to control water seepage along the trench line and prevent erosion of backfilled material;

l) Where groundwater flow is determined by the Environmental Inspector or Construction Manager to be a concern for the integrity of the pipeline, the Contractor shall install subdrains to divert shallow groundwater flow away from the pipeline trench to improve slope stability and prevent saturation of backfilled materials;

m) For long stretches of uninterrupted open trench and spoil piles, the Contractor shall leave 10 to 20 m breaks in spoil piles and windrows at a maximum of 500 m apart along the RoW (to be identified by the Company) to coincide with trench plugs to establish a wildlife travel corridor and facilitate wildlife passage. If trench plugs are not appropriate, some form of access will be provided out of the trench (e.g., earthen steps built into the side of the trench);

n) To further minimize the potential environmental effects on wildlife, the Contractor shall schedule construction activities such that lowering-in and backfilling follow shortly after trenching to the extent practical;

o) The Contractor shall leave breaks in spoil piles at appropriate intervals and locations to provide for natural drainage of water, coincide with diversion berms installed for erosion and sediment control, and maintain property access for the landowner (where required);

p) The Contractor shall leave trench plugs, install trench breakers at either side of watercourses, and/or seal the trench bottom to prevent the pipeline trench from dewatering the watercourse, where required;

q) To the extent practical in order to minimize shallow groundwater flow effects, trench water that has established a static level and is not at risk of overflowing will not be pumped out until such time as is required for installation of the pipe, if scheduling and safety considerations permit. Runoff of water from such a trench shall be controlled and mitigated such it does not directly enter a watercourse;

r) The Contractor shall monitor the water levels in open trenches to ensure issues regarding uncontrolled dewatering and potential overflow are addressed. Furthermore, the Contractor shall monitor forecasted

weather reports and ensure all erosion and sediment control measures are capable of handling additional flows;

s) Trench inspections for trapped fauna will be conducted at the beginning of each working day. If an animal is trapped in the trench, NSDLF will be contacted.

t) Where dewatering of the trench is required, the Contractor, in consultation with the Company, will select appropriate upland filtration sites for dewatering of trench water. The Contractor, to the extent practical, will discharge the water onto stable vegetated surfaces, into wetland filter bags, or into constructed containment areas (i.e., sediment trap) in a manner that does not cause erosion or any unfiltered water to directly enter a watercourse or wetland;

u) The Contractor shall monitor dewatering sites for erosion or flooding. In the event that erosion or flooding occurs, dewatering shall cease until such time as a new location is selected and/or additional mitigation is implemented as required;

v) Shallow dug wells and springs adjacent to the RoW will be monitored during trenching where groundwater is encountered and it is determined by the Environmental and/or Construction Inspector that the trenching could affect groundwater levels in the adjacent well. An expert will be consulted if needed;

w) The Contractor is responsible for ensuring locates for subsurface infrastructures/utilities are completed prior to any grading or trenching activities; and

x) The Contractor is responsible to replace/repair any existing subsurface infrastructure/utilities that are damaged as a result of pipeline activities.

5.1.6 PIPE DELIVERY, STRINGING AND PIPE PREPARATION

The delivery of line pipe joints to the RoW from the pipe storage yard is referred to as stringing, which typically follows trenching activities. In the case of large diameter pipe, special stringing trucks are required for the transportation of pipe joints. Crews typically lay out wooden skids along the RoW prior to the delivery of the pipe, which will be used to support the pipe joints. Pipe joints are removed from the stringing trucks as the trucks travel along the RoW. The pipe is removed from the truck using back hoes or side booms and each individual section is placed on the wooden skids adjacent to the trench.

Approximately 10.5 km of Nominal Pipe Size (NPS) 16 inch steel pipe will be laid. The pipe will conform to the contour of the excavated trench, which generally conforms to the contour of the natural landscape; therefore no mechanical bending of the pipe will be required. The pipes will be fused/welded above ground.

Issues associated with these activities can include compaction of soil along the RoW due to the weight of the stringing trucks, damage to erosion and sediment control structures (particularly diversion berms) from heavy equipment traffic, limiting wildlife movement and interference with traffic in urban areas. There is the potential for accidental releases of fuel or hydraulic fluid from the operation of construction vehicles and heavy equipment (see Contingency Plan - Spills in Section 6.4).

The following BMPs and mitigation measures will be employed during stringing activities:

a) The Company and Contractor will employ applicable BMPs provided in Section 4 (General Environmental Practices), Section 3.1.1 (Wetlands), and Section 3.2.1 (Watercourses);

b) The Company will confine all project traffic to the RoW, designated access roads and construction sites;

c) Where project-related dust is generated by trucks on or off the RoW or associated access, dust control measures will be applied (see Section 4.3);

d) Turnaround points may be created along the RoW to direct traffic away from sensitive features. Wherever possible, turnaround points will be constructed in natural openings;

e) To minimize any temporary disruptions to local business operations, the Company shall work with local business owners. This may require modified scheduling of activities (i.e., time stringing activities to avoid peak traffic hours); and

f) The Contractor will repair any erosion and sediment control structures installed along the RoW that may be damaged by stringing and bending activities as soon as possible.

5.1.7 TRENCH DEWATERING

The prepared pipe sections are lowered into the trench, once the trench has been excavated (which may include the removal of broken or blasted rock). Preparation of the trench by the Contractor may include sand padding and/or foam blocks or pillows in areas where trench rock has been blasted to protect the pipe, as well as, dewatering of the trench where it has filled with water (groundwater, surface runoff, or precipitation). After the trench has been prepared, sections of pipe will be lowered into the trench by side-boom tractors and/or excavators. A tie-in crew will make the welds to connect the lowered-in sections of pipe. Using a dragline, bulldozer or excavator the Contractor will backfill the trench with the soil removed from the trench.

Water flow along the trench and dewatering of the trench prior to lowering-in can cause erosion and sedimentation; dewatering of shallow aquifers or lowering of the base flow in nearby shallow groundwater-fed water bodies and/or wetlands; and loss of topsoil during backfilling, are potential environmental issues associated with lowering-in, trench dewatering and backfilling.

There may be the potential for accidental releases of fuel or hydraulic fluid from the operation of construction vehicles and heavy equipment (see Contingency Plan - Spills in Section 6.4).

The following BMPs and mitigation measures shall be employed during lowering-in, trench dewatering and backfilling activities:

a) The Company and Contractor will employ applicable BMPs provided in Section 4 (General Environmental Practices), Section 3.1.1 (Wetlands), and Section 3.2.1 (Watercourses);

b) The Contractor will adjust construction scheduling to minimize the time between trenching and backfilling, to the extent practical, particularly in urban areas, areas potentially subject to dewatering concerns and areas that require wildlife passage;

c) The Contractor shall monitor the water levels in open trenches to ensure issues regarding uncontrolled dewatering and potential overflow are addressed. The Contractor will also monitor forecasted weather reports and ensure all erosion and sediment control measures are capable of handling additional flows, to the extent practical;

d) Where required, the trench will be dewatered just prior to pipe installation;

e) Trench dewatering must be a minimum of 30 m from any watercourse or wetland;

f) Where dewatering of the trench (or bore pit) is required, the Contractor will ensure the water is discharged onto stable vegetated surfaces at a sufficient distance from watercourses and wetlands to ensure the majority of any siltation does not enter the watercourse or wetland; into wetland filter bags; or into constructed containment areas in a manner that does not cause erosion or any unfiltered water to enter a watercourse or wetland;

g) The Contractor, in consultation with the Company to the extent practical, will select appropriate upland filtration sites for dewatering of trench water. The Contractor will monitor filtration sites for erosion or flooding. In the event that erosion or flooding occurs, dewatering shall cease until such time as a new location is selected and/or additional mitigation is implemented as required;

h) To minimize environmental effects to shallow groundwater flow, trench water that has established a static level and is not at risk of overflowing will not be pumped out until such time as is required for installation of the pipe, if scheduling and safety considerations permit;

i) Prior to lowering-in and backfilling, the Contractor will check open trenches for wildlife such as wood turtles. Such animals will be rescued prior to lowering-in/backfill;

j) The Contractor will prepare the trench, as required, in accordance with construction specifications (i.e., sand padding or foam pillows) prior to lowering-in;

k) In shallow water table areas, the Contractor shall ensure the pipeline is weighted to provide negative buoyancy, as required;

l) Prior to backfilling, the Contractor will ensure ditch breakers and sub-surface drainage are installed where required;

m) Where excavated trench material is excessively stony, the Contractor will use shakers to remove stones prior to backfilling the trench;

n) Material excavated from the RoW that is not suitable as backfill, such as large rocks, will be windrowed along the edge of the RoW with landowner permission, or hauled off the RoW and disposed of in an approved location. Any excess subsoil will be removed and disposed of at an approved location;

o) The trench shall be backfilled and compacted in a manner that minimizes below grade settlement, including crowning the trench to allow for settling of trench soils;

p) The Contractor may use materials in trench backfill that resemble aquifer hydraulic properties;

q) Modification to backfill materials may be needed in areas where water supply disruptions have occurred during construction, due to alteration in shallow groundwater flow. Backfilling with coarser grained materials such as gravel can promote the re-establishment of shallow groundwater flow to former down-gradient receptors;

r) The Contractor shall replace trench material and topsoil in a manner that prevents mixing and loss of topsoil. This is especially important in agricultural areas;

s) The Contractor will repair any damaged and severed drain tiles. After the repair and prior to backfilling, landowners will be invited to inspect and approve the tile repair;

t) The Contractor shall maintain all temporary sediment control structures/features throughout the construction period and repair and reinstall them as necessary (such as after backfilling of the trench). Permanent erosion and sediment control measures shall be installed and maintained during the RoW clean-up and restoration phase of construction; and

u) Initial clean-up and restoration activities, including soil stabilization and erosion protection measures, will commence as soon as possible after backfilling.

5.1.8 DAM AND PUMP – DRY WATERCOURSE CROSSINGS

Alton will submit an application to NSE to obtain Authorization for the open cut installation of the gas pipeline under the Activities Designation Regulations: Watercourse Alteration. Once approved, the Contractor is required to have a copy of the Watercourse Alteration Approval on site and follow any additional site specific mitigation measures described by NSE in the Approval.

The following BMPs and mitigation measures are specific to dry (dam and pump) watercourse crossings.

a) The Contractor will implement the measures contained within the Erosion and Sediment Control Plan for Dam and Pump Crossings (Appendix C.3), as required;

b) Any instream work will be limited to the period between June 1st – September 30th;

c) The work area will be isolated and a fish rescue will occur for all watercourses deemed to be fish bearing;

d) The Contractor shall ensure dry crossings are carried out in a manner that effectively isolates the instream construction site from the natural watercourse flow. If required, a polyethylene liner shall be used to reduce infiltration into or out of the isolated area;

e) As a general guideline, the dam and pump method will be applied to streams where the expected 1:2 year discharge of the watercourse does not exceed 1.5 m^3/s;

f) If the watercourse is deemed fish bearing, the inlet of the water pump will designed to avoid fish entrainment as per DFO's Freshwater Intake End-of-Pipe Fish Screen Guidelines (Appendix C.4);

g) If the streambed has adequate slope so that the pumped water does not affect the downstream side of the excavation, a downstream seal or dam may not be required;

h) The Contractor shall ensure the length of the isolated area is sized to ensure trench sloughing does not threaten the integrity of the upstream and downstream dams;

i) The Contractor shall ensure the upstream and downstream seals or dams are set back far enough from the trench area to ensure integrity of the crossing method is not at risk during trenching;

j) An adequate number of pumps of suitable capacity shall be on site to accommodate the anticipated flows and any potential increases in flow during the construction period. Pumps (and backup pumps) will have the capacity to pump at least 1.5 times the volume of the water present. Spare pump(s) and generator(s) will be on site and/or readily available for replacement service should the primary operating equipment fail;

k) The Contractor shall ensure active pumps used during dry watercourse crossings are attended to at all times;

l) The seal or dam will be constructed of bags of sand, pea gravel, polyethylene liner or other materials that shall minimize instream work and effectively isolate the watercourse flow from the trench area;

m) Dewatering of the excavation will likely be required either continually or periodically during construction of the crossing or at least prior to lowering-in and backfilling to verify the condition and quality of the trench and to ensure sediment-laden trench water does not overflow the trench and flow downstream;

n) Where dewatering of the trench is required, the Contractor, in consultation with the Company, will select appropriate upland filtration sites for dewatering of trench water. Where practical, the Contractor will ensure the water is discharged onto stable vegetated surfaces, into wetland filter bags, and/or into constructed containment areas (i.e., sediment trap) in a manner that does not cause erosion or any unfiltered water to enter a watercourse or wetland;

o) The Contractor shall monitor dewatering sites for erosion or flooding. In the event that erosion or flooding occurs, dewatering at that location shall cease and a new location will be selected and/or additional mitigation will be implemented as required;

p) The Contractor shall install an energy dissipater or baffle to prevent erosion or scour of the substrate at discharge hose outlet(s), if required;

q) The Contractor shall install and restore sumps as directed by the Company. The Company will review the locations of proposed sumps with provincial and federal regulatory agencies;

r) Intra-substrate flow characteristics and quality shall be re-established upon completion of the crossing;

s) The Contractor shall store materials removed or stockpiled during construction (excavated soil, backfill material) in such a manner to prevent the potential for sediment to enter the watercourse or pose a risk for bank failure;

t) Dry crossing ditch spoil will typically be stored in TWA between the 30 m buffer from the watercourse and the 30 m setback for grade spoil. While this storage of trench spoil close to the watercourse is not without short-term environmental risk (i.e., only for the duration of the crossing itself), this risk is typically off-set by the expeditious excavation and backfilling of the crossing. If storage is to extend beyond one day, temporary erosion controls (e.g., silt fence, berm) shall be installed as appropriate. Storage in this space will not exceed three days;

u) While storage of trench spoil in TWA is preferred, some trench spoil may be stored on the dry watercourse bed provided all of the material is returning to the trench and does not contain a substantial component of sediment fines, and as space allows. This approach may be used in instances where trucking or bailing of the trench material away from the watercourse bed is not practical (e.g., due to steep slopes). Storage of trench spoil on the dry watercourse bed will be undertaken only if approved onsite by the Environmental Inspector;

v) The Contractor shall locate discharge hoses so as to minimize interference with watercourse construction activities and ensure downstream water quality and quantity is not compromised; and

w) For smaller dry crossings, the Contractor will generally backfill from the centre of the watercourse towards the bank, forcing any trench water back towards the shore (this may not be possible for larger dry crossings or wet crossings). Trench water shall then be pumped into a sump, vegetated area, or suitable filtration system in a manner such that it will not directly re-enter the watercourse or a wetland.

5.1.9 BORING – HORIZONTAL DIRECTIONAL DRILLING (HDD)

The natural gas pipeline system is proposed to cross the Stewiacke River (WC-2) by HDD. HDD is less intrusive than traditional open-cut trenching where open cut stream crossings may result in natural habitats sustaining disturbance to the native soils and vegetation.

In addition to the BMPs and mitigation measures provided in Section 5.1.8 above, the following BMPs and mitigation measures are specific to bored watercourse crossings.

a) To the extent practical, the Contractor will schedule construction activities such that all instream work is conducted between June 1st and September 30th to minimize potential environmental effects associated;

b) Prior to initiating the crossing, applicable geotechnical data shall be gathered and reviewed;

c) Contingency plans shall be in place to address the potential for crossing failure (i.e., if boring is unsuccessful, a dry crossing will likely be required);

d) The Contractor shall ensure bore pits are located to minimize disturbances of watercourse banks and riparian areas or other identified environmental features (unless otherwise approved by local regulatory agency representatives). At a minimum, boring equipment shall be set up 30 m from the edge of the watercourse and no clearing or grading will be conducted within the 30 m zone unless absolutely required for construction or safety reasons. If required, the Contractor will clear a narrow hand cut slash lines through the riparian buffer;

e) The Contractor shall install silt fences along the edge of the construction zone prior to commencement of the crossing;

f) The Contractor will erect safety fencing, as required, around excavations to protect wildlife, workers and/or general public;

g) The Contractor will select, contain, and dispose of bored material based through amalgamation with sub-soil stockpiles;

h) The Contractor will ensure pipe required for the watercourse crossing is pressure tested prior to installation;

i) During the auger pull back operation, the Contractor shall remove displaced soil from the mud pit and are shoveled into stockpiles on site;

j) To the extent practical, the Contractor will dewater excavations, where required, onto stable well-vegetated areas, wetland filter bags, and/or constructed containment areas in a manner that does not cause erosion or sedimentation of a watercourse or wetland. Discharge locations will be predetermined (in consultation with the Company). The Contractor will monitor filtration sites for erosion or flooding. In the event that erosion or flooding occurs, dewatering at that location shall cease and a new location will be selected and/or additional mitigation will be implemented as required;

k) The Contractor will ensure supervisory personnel are on site at all times during boring, reaming and push through operations to ensure response measures can be implemented immediately and effectively;

l) The Contractor shall ensure storm water drainage control is implemented using measures such as silt fences and check dams as quickly as possible;

m) To the extent practical in the event of extreme wet weather, the Company and Contractor will implement additional erosion and sediment control measures as warranted to ensure runoff from the construction site does not directly enter adjacent watercourses (i.e., runoff will be intercepted with sediment pond or other measures as appropriate); and

n) Restoration of the bore site will be initiated as quickly as possible following completion of the bore and pipeline installation.

To minimize the potential for a frac-out, the Frac-Out Contingency Plan must include:

a) Design protocols to be implemented for the protection of adjacent biological resources during the preparation and execution of the HDD activities; and

b) Design protocols requiring a geotechnical engineer or qualified geologist to review the geology in the vicinity of the proposed HDD installations and to make recommendations regarding the suitability of the surficial geological formations, through which the pipe will be bored, so as to minimize the potential for frac-out conditions.

The HDD Frac-Out Contingency Plan (Section 6.14) will be reviewed by the HDD Drilling Contractor, to ensure that appropriate preventive and responsive measures can be implemented by the Contractor responsible for the HDD Construction Work.

Prior to the initiation of construction using HDD technologies, sensitive biological and environmental resources will be protected by implementing the following measures:

a) A pedestrian survey will be conducted in the vicinity of the HDD drilling entry and exit areas, surrounding work areas, and the drilling route (to the extent it is accessible) to ensure that there are no sensitive biological and environmental resources are present on the surface;

b) Excavation of all entry or exit points will receive full-time environmental monitoring. If environmental or cultural resources are discovered during pit excavation or as the result of a frac-out, the applicable conditions of the environmental approval will be followed;

c) Where present, sensitive biological and environmental resources will be flagged for avoidance or construction limits will be clearly marked;

d) Barriers (straw bales or sedimentation fences) will be erected between the bore site and nearby sensitive resources prior to drilling, as appropriate, to prevent released material from reaching the demarcated sensitive biological or environmental resource;

e) Prior to initiation of construction, on-site briefings will be conducted for the HDD workers and other personnel to identify and locate sensitive resources at the site;

f) Ensure that all field personnel understand their responsibility for timely reporting of frac-outs;

g) Maintaining necessary response equipment on-site or at a readily accessible location and in good working order;

h) Disallow placement of excess fill into stream waters, wetlands and other sensitive environmental areas unless proper permits have been obtained;

i) Monitor the construction site using a qualified biologist or Environmental Inspector for the duration of the HDD drilling activities; and

j) Implement any of the mitigation measures specified by NSE and other environmental regulators.

To further reduce the potential impacts of a frac-out, construction of the pipeline is expected to occur when there is least (or no) flow in the streams to be crossed. Construction of the pipeline crossings is expected to take place between June 1st and September 30th.

The HDD drilling entry and exit areas will be clearly marked and surrounded by construction fencing and silt fencing to minimize the potential for all-site migration of drilling mud. Access and egress locations at each crossing will be designated and clearly marked.

The primary areas of concern for inadvertent return of drilling fluids to the surface are typically located at or near the entrance and exit points where the drilling equipment is located at depths of less than 3.7 m to 6.1 m (12 to 20 feet) below the surface of the earth. The likelihood of inadvertent drilling fluid return decreases as the depth of the pipe below the surface increases. To reduce the potential of a frac-out affecting sensitive resources, the entrance and

exit points for drilling will be located at least 15 m (50 feet) from riparian vegetation along streams to be crossed using HDD methods.

To minimize the potential extent of impacts from a frac-out, all HDD activities will be attended by an Environmental Inspector who will monitor the drilling activities, looking for observable "frac-out" conditions or lowered pressure readings on the drilling equipment. Early detection is key to minimizing the area of potential impact associated with an inadvertent loss of drilling fluids or frac-out.

5.2 HYDROSTATIC TESTING

It is anticipated that prior to commissioning the pipeline, hydrostatic testing will be conducted to confirm the integrity of the pipeline system. Hydrostatic testing involves filling the pipeline (or sections of the pipeline) with water and pressurizing the line above the normal operating pressure for a designated period of time while continuously monitoring the pressure.

If possible, test water shall be sourced from a municipal water distribution system and if suitable, discharged into a municipal storm sewer system. Alternatively, water can be obtained from nearby lakes or watercourses, in accordance with applicable permits for water withdrawal through NSE.

Water source options for hydrostatic testing will be determined on a pipeline segment-specific basis. The hydrostatic test locations and water volumes required will be identified by the Contractor. Appropriate mitigative measures shall be implemented by the Contractor as defined below and as directed by the Company. Mitigation measures must be in compliance with relevant municipal, provincial and federal standards and regulatory requirements. The contractor is responsible for obtaining any water withdrawal permits if required, for the purpose of hydrostatic testing.

During the pre-withdrawal, withdrawal and dewatering phases of hydrostatic testing the contractor shall ensure that environmental procedures are performed and completed as outlined on the Hydrostatic Test Report (Section 8). The following BMPs and mitigation measures will be employed for the hydrostatic testing phase of construction.

Test Water Withdrawal:

a) The contractor is required to identify potential water bodies to be used for hydrostatic testing water in sufficient time (i.e. minimum two weeks) prior to the hydrostatic testing. This will allow for sample collection and laboratory analysis to establish baseline water quality parameters. Analysis should include, at minimum: general chemistry, metals, petroleum hydrocarbons (PHCs) and total suspended solids (TSS);

b) The *Environment Act* (Activities Designation Regulations – Division I) states that if surface water withdrawal exceeds 23,000 litres per day (for a period of more than two weeks), an approval must be obtained from NSE. In the unlikely event the contractor expects to exceed this limit, advance notice is required as it could take up to 60 business days to receive the required approval;

c) Use appropriate intake screens to prevent entrainment of fish during the intake/pumping of hydrostatic test water. For guidance, refer to Appendix C.4 - Freshwater Intake End-of-Pipe Fish Screen Guideline;

d) Hydrostatic testing (withdrawal and discharge) may occur within the Stewiacke Designated Water Supply Area as per the Designated Protected Water Areas in Nova Scotia from NSE in September 2013 (see Appendix C.2); however, the contractor shall ensure the BMPs and mitigation measures below and in the Water Supply Protection Plan will be applied;

e) To the extent practical, the contractor will test the pipeline sections to be installed under watercourses in advance of installation;

f) Do not use additives in test water, except where dechlorination is required; and

g) The contractor shall isolate pumps and equipment from watercourses with an impermeable lined dyke or depression to prevent spills of fuel or lubricants from entering a watercourse or wetland.

Test Water Discharge:

a) The contractor is required to identify potential discharge locations for review by the Environmental Inspector. If water is sourced from nearby waterbodies, the discharge locations must be within the same watershed of the intake locations;

b) Representative water samples will be collected from the pipeline and analyzed (at minimum, general chemistry, metals, PHC and TSS) to determine water quality post hydrostatic testing. Results will be reviewed to determine appropriate discharge/disposal options. If the water quality is deemed unsuitable for discharge onsite, the water will be transported off site and disposed of at an approved facility (as discussed in section 6.4.4);

c) If test water is deemed suitable for discharge onsite, the point of discharge should be a minimum of 30 metres from any fresh water bodies and residential wells;

d) Discharge locations should be well-vegetated to avoid any risk of sedimentation and erosion. Discharge flow should be monitored and controlled to allow for a slow/gradual release, preventative measures may be required to protect surrounding surfaces (i.e. energy dissipater). Site specific recommendations may be required by the Environmental Inspector';

e) If discharging chlorinated water, water must be dechlorinated and analyzed prior to discharging;

f) In the event of an accidental hazardous material spill, refer to section 6.4 - Hazardous Spills;

5.3 ROW RESTORATION

The final step in the construction process is to restore the RoW and easement lands as closely as possible to its original condition. This process will involve replacing topsoil, removing large rocks that may have been brought to the surface and ensuring the trench line is crowned with enough subsoil to allow for trench settlement. The restoration crew also repairs fences, removes debris, and restores sensitive areas such as steep slopes, ditch banks, and watercourse crossing areas.

The following BMPs and mitigation measures will be employed for the RoW clean-up and restoration phase of construction:

a) The Company and Contractor will employ applicable BMPs provided in Section 4 (General Environmental Practices), Section 3.1.1 (Wetlands), and Section 3.2.1 (Watercourses);

b) The Contractor shall ensure all waste and litter is removed from the RoW and temporary work areas and is recycled or disposed of properly;

c) The Contractor shall grade the RoW and restore slopes to the original contours as close as practical. The Contractor shall ensure temporary drainage control devices (i.e., culverts) have been removed and drainage across the RoW is restored to original drainage patterns;

d) The Contractor shall ensure excess subsoil (i.e., grade material and trench spoil) is windrowed along the edge of the RoW with landowner permission, or removed from the RoW and temporary work areas and disposed of at an approved location. Some of this material may be worked into the grade in adjacent areas provided this does not noticeably affect the ability of the Contractor to restore original contours in those areas;

e) Corduroy material removed from the RoW shall be disposed of at an appropriate offsite disposal facility, or incorporated into the RoW grade provided this does not noticeably affect the ability of the Contractor to restore original contours in those areas;

f) The Contractor shall ensure long-term/permanent erosion and sediment control measures (e.g., diversion berms and soil stabilization techniques) are implemented/constructed, where required, in accordance with the generic erosion and sediment control plans (to be completed with the construction drawings), and site-specific erosion and sediment control plans (to be developed at the discretion of the contractor);

g) The Contractor will replace topsoil over graded areas from where it was salvaged. Topsoil will be replaced using a dragline, excavators and/or small bulldozers;

h) The Contractor shall ensure temporary fences have been removed and permanent fences have been replaced;

i) The Contractor shall remove temporary vehicle access across watercourses in accordance with Section 4.2 of this EPP;

j) The Contractor will apply the following seed mixes to the RoW once it has been re-contoured and topsoil has been spread (Tables 5-1 and 5-2). The seed mix varies depending on the location along the RoW and the time of year the seed mix is applied. Note: All seeds shall be Canada No.1 Grade and labelled in accordance with the *Canada Seed's Act*;

k) The Contractor shall restore watercourse buffers and approaches upon pipeline construction and backfill. In these areas, seed mixes will be applied and covered with mulch, erosion control matting or other suitable material to prevent erosion of the seed mix;

l) The Contractor shall restore watercourse buffers and approaches upon pipeline construction and backfill. In these areas, seed mixes will be applied and covered with mulch, erosion control matting or other suitable material to prevent erosion of the seed mix;

Table 5: Seed Mix for Lands Seeded in March through July

COMMON NAME	BOTANICAL NAME	SEEDING RATE (KG/HA)
Creeping red fescue	*Festuca ruba*	20
Meadow fescue	*Festuca pratensis*	20
Timothy	*Phleum pretense*	15
Canada blue grass	*Poa compressa*	10
Red top	*Agrostis alba*	10
Alsike clover	*Trifolium hybridum*	5
Red clover	*Trifolium pretense*	5
Perennial rye grass	*Lolium perenne*	5
Spring barley[1]	*Hordeum vulgare*	30
	Total	**120**

[1]If seed mix is applied mechanically, then apply as a separate application.

Table 6: Seed Mix for Lands Seeded in August through November

COMMON NAME	BOTANICAL NAME	SEEDING RATE (KG/HA)
Creeping red fescue	*Festuca ruba*	30
Canada blue grass	*Poa compressa*	20
Timothy	*Phleum pretense*	15
Red top	*Agrostis alba*	10
Alsike clover	*Trifolium hybridum*	5
Red clover	*Trifolium pretense*	5
Perennial rye grass	*Lolium perenne*	5
Annual rye grass[1]	*Lolium mulitflorum*	30
	Total	**120**

[1]If seed mix is applied mechanically, then apply as a separate application.

m) Where suitable bank conditions exist (*i.e.*, non-rock banks) and vegetation (*e.g.*, alders, sumac) is available adjacent to the RoW at watercourse crossings, small branches from these species will be gathered and inserted into the soils within the watercourse buffers;

n) The Company will periodically review seed bag tags to ensure proper and approved seed mix is being used by the Contractor. The Contractor will provide seed bag tags to Environmental Inspectors for review;

o) Where seed cannot be applied within sufficient time for grass seed to establish itself prior to winter, the Contractor will implement other erosion protection measures as indicated by the Company;

p) The Contractor shall ensure all roads, lanes and driveways are properly restored;

q) The Contractor will review Alton's Letter of Commitments to landowners to ensure proper measures to limit access to the RoW are constructed as appropriate; and

r) The Company shall monitor erosion and sediment control structures and revegetation along the RoW, particularly on steep slopes and adjacent to watercourses, until the grass is sufficiently established to effectively prevent erosion. Once the RoW is stabilized, non-biodegradable erosion and sediment control material (*e.g.*, silt fences) will be removed.

Upon completion of restoration, the landowner and an Alton representative will conduct a RoW review to assess conditions. The landowner will be asked to sign a clean-up acknowledgment form if satisfied with the restoration. Once signed, this form will release the contractor, allowing payment for the restoration on the property, however in no way does it release Alton from its obligation to compensate for damages or to rehabilitate disturbance directly attributable to the pipeline construction.

5.4 ROW MAINTENANCE

In keeping with the standard procedures specified by the CAN/CSA Z662 Standard, Alton will operate and maintain the pipeline accordingly, to ensure the integrity of the system. Alton will patrol the pipeline on a routine basis and qualified personnel will complete any required maintenance. Commercial air services may be used as required for routine inspection of the pipeline.

Keeping the pipeline RoW clear of structures, trees and other obstructions is necessary for public safety and reliable energy delivery. The pipeline RoW will be clearly marked with sign and post markings at public roads, navigable water crossings, and other areas as required which will reduce the possibility of damage or interference resulting from construction activities of other projects. A clear RoW is an important indicator of underground facilities to third parties who may be performing nearby construction. Direct and immediate access to a pipeline enables Alton to conduct testing to monitor the pipeline's integrity and to perform general maintenance and repairs. In the event of an emergency, a clear RoW is necessary for adequate response from both Alton personnel and emergency response officials. A clear RoW enables safer and more effective patrols and inspections.

Alton will file an Operations Manual with the NSUARB, prior to commissioning the pipeline. The manual will consider all current and ongoing discussions with regulatory agencies, stakeholders, and community groups to ensure consideration of local needs.

During pipeline operation, typical maintenance and monitoring activities may include internal pipeline inspections using "Smart Pigs" (electronic inspection tools), annual aerial surveillance, over the ground surveys, and cathodic protection monitoring. If required, excavation, inspection, and replacement of pipe segments will be undertaken.

A number of different environmental conditions and terrain types will be traversed by the pipeline RoW. Alton's existing RoW maintenance procedures and those used by other major pipeline companies across Canada, will be followed for the maintenance of the RoW, with specific modifications made for the region. Alton personnel and/or qualified contractors using proper equipment will perform all necessary maintenance.

On the RoW, vegetation control will be accomplished by mechanical means. Where physical vegetation management techniques are unsuccessful in controlling noxious weeds the use of herbicides for vegetation control may be required. Only herbicides of low persistence and low ecological toxicity will be used. No chemical spraying will be applied to the RoW; unless to control vegetation growth within the confines of meter stations and other

station facilities, where limited chemical spraying would be applied (and in accordance by applicable regulations). No chemical vegetation control will be performed within or adjacent to wetlands or within 30 m of watercourses.

Suitable fencing will be installed to prevent tampering by unauthorized parties and pipeline valves and aboveground facilities will be properly secured. The fenced areas will be maintained to ensure safety and an acceptable appearance.

6 CONTINGENCY/ EMERGENCY RESPONSE PLANS

6.1 EMERGENCY RESPONSE COMMUNICATION PLAN

For minor incident where no injury, loss of life, fire or property damage occurs, the first person on the scene will ensure that the appropriate company representative is dispatched to the scene. In most cases, normal procedures outlined in this EPP or in the operations manual (if available) for identifying the source of issue, making, repairs, and documenting calls are appropriate.

In the event the emergency is a major incident, such as natural gas pipeline leak, fire, explosion, severe weather event, or civil disturbance, the communication protocol is shown in Figure 6-1.

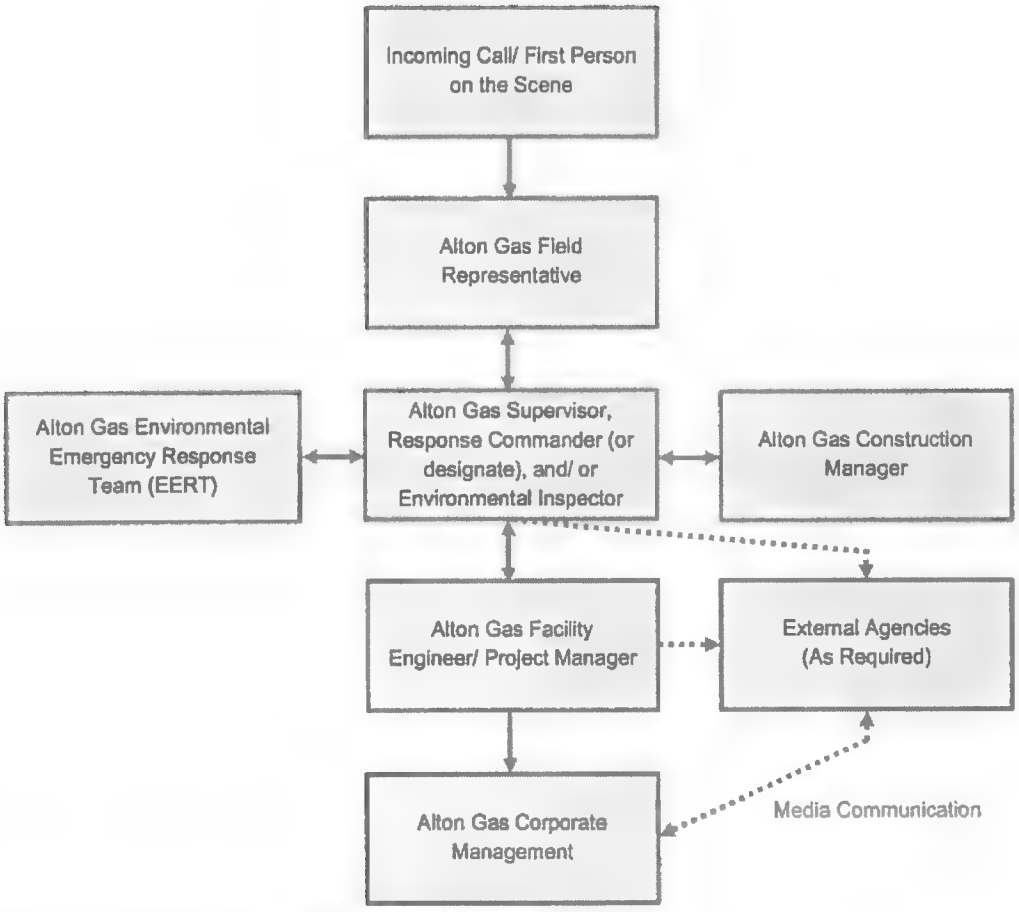


Figure 6-1: Emergency Response Communication

Note: The Alton Gas Supervisor/ Response Commander will be the coordinator during emergencies.

A 24 hour AltaGas corporate telephone number (1-866-826-3830) will be available for emergencies during project construction and operation. Section 4.1 of the EMP explains the roles and responsibilities of all Alton Natural Gas Storage LP personnel during construction, operation, and maintenance.

6.1.1 EXTERNAL PROCEDURES

A list of relevant government agencies and associated contact information is provided in Section 4.5 of the EMP in case of an emergency. Regulatory agencies are to be contacted by Company personnel only if approved by the Company.

6.1.2 COMMUNICATION/ ACTIVATION PROCEDURES

Emergencies that occur during construction and operations, including the release of potentially hazardous materials such as POLs will be reported immediately by the first employee on the scene. This person will contact the Alton Response Commander to ensure that emergency response is initiated, including notifying the internal EERT,

Environmental Inspector (during construction), and initiating the emergency reporting procedures and actions shown in detail below.

6.2 ENVIRONMENTAL EMERGENCY RESPONSE TEAM

6.2.1 TEAM

The contractor will provide an Emergency Environmental Response Team (EERT) during construction in order to respond quickly to unforeseen or emergency situations as directed by the Company. Alton will provide an EERT during operations and maintenance activities. On the first working day of each week, the contractor will submit a list detailing components of the EERT, i.e. their location, and the location of equipment and materials designated for use by the EERT. A revised list will be submitted following any EERT modifications during construction.

6.2.2 EMERGENCY EQUIPMENT

Materials designated for use by the EERT will be stored separately from other construction materials. These materials will include, but not be limited to the following items:

a) Water pumps (various capacities);
b) Geotextile fabric;
c) Shovels;
d) Straw bales;
e) Rock riprap;
f) Sand and sand bags;
g) Silt fencing;
h) Erosion control matting;
i) Log/mat bridge;
j) Plastic snow fencing and T-bar posts; and
k) Spill response materials (i.e. absorbent pads, spill kits).

Equipment that will be made available to the EERT may include:

a) Backhoes (Cat 225 or equivalent);
b) 4 x 4 off-road truck;
c) Bulldozers (D4, D6); and
d) Loader (Cat 955 or equivalent).

Routine inventory and maintenance of the emergency response equipment will be performed on a monthly basis to ensure the equipment is working to its full potential. A member of the EERT will ensure that appropriate maintenance and required repairs to the equipment is completed in a timely manner.

6.3 IDENTIFICATION OF HAZARDS

A number of potential hazards have been considered in relation to the project construction and operation. These include, but are not limited to:

- Hazardous spills;

- Fire;
- Extreme weather;
- Natural gas pipeline leaks/escapes;
- Explosions;
- Civil disturbances;
- Odours and fumes- including natural gas, carbon monoxide, or other flammable or noxious fumes.
- Wildlife encounters; and
- Heritage or archeological discovery.

6.3.1 HAZARDOUS SPILLS

A spill or unintentional release of hazardous materials will vary on the type of emergency response and severity. Concerns relate primarily to ensuring that a release is handled immediately and that human health, property, and the environment are protected.

During construction and operation, motor vehicles and equipment such as the transfer pumps be using Petroleum, Oil, and/or Lubricants (POLs). However, only minor quantities are expected to be stored and used on site and are estimated to be less than the reportable limits (e.g. 100 L) from the Emergency Spill Regulations in the Environmental Act. Details of the spill response procedures are explained in detail in Section 6.7 of this report.

6.3.2 FIRE

Building fires or forest fires have the potential to cause hazards on site. If the first emergency responder determines the building or forest fire is near the natural gas pipeline, they are required to contact Alton Natural Gas Storage LP. The fire response plan is explained in detail in Section 6.5 of this report.

6.3.3 EXTREME WEATHER EVENTS

Extreme weather events could cause work stoppage and erosion subsequently resulting in siltation; details are explained in Section 6.6.

6.3.4 NATURAL GAS PIPELINE LEAKS

Natural gas pipeline leaks are incidents where natural gas pipeline facilities have been disturbed or damaged resulting in natural gas escaping to atmosphere. Natural gas is lighter than air resulting in the gas immediately rising in the atmosphere from the leak source, unless it is restrained by frost, pavement or other cover. In the event that a natural gas leak occurs, the report limits for compressed gases and Mercaptan is 100 L. If it exceeds 100 L an emergency response would likely be required. See Section 6.7 for more detail.

6.3.5 EXPLOSIONS

Explosions may be natural gas-related if located in the Natural Gas Pipeline project area. If the first emergency responder is unsure whether there is gas in the area, they are required to contact Alton. Details of the emergency response plans are included in Section 6.8 of this report.

6.3.6 CIVIL DISTURBANCES

The best defense against civil disturbances is to understand the motive behind the disturbance, methods of attack, and having a plan for limiting damage from such disorders. Civil disturbances can have similar disruptive effects as a natural disaster. Alton will cooperate with police, fire departments, and other EMO agencies to plan, communicate and trial mock response plans periodically. It is unlikely in the rural areas where the natural gas pipeline will be located that a civil disturbance will occur, however if a disturbance is observed, please refer to Section 6.9 for emergency response details.

6.3.7 ODOURS AND FUMES

These situations would likely be reported to Alton by an employee, general public, other emergency responder such as fire or police and may involve natural gas if the reported situation is in the project area.

The Alton Representative arriving at the scene will assess and determine the source of the odour. The odour may lead to the determination of a natural gas leak, carbon monoxide (possibly if in a building), or any other cause. Once the situation has been determined and understood, the appropriate emergency response protocol would be implemented if necessary. See Section 6.10 for emergency response details.

6.3.8 WILDLIFE ENCOUNTERS

Wildlife encounters have the potential to cause a hazard to humans and/or the animals. See Section 6.11 for details.

6.3.9 HERITAGE OR ARCHEOLOGICAL DISCOVERY

This addresses the accidental discovery of an archeological artifact or heritage site that had not been previously discovered. See Section 6.12 for details.

6.4 HAZARDOUS SPILLS

6.4.1 RESPONSE PROCEDURES

A Spill Response Procedures Flow Chart is shown below in Figure 6-2.

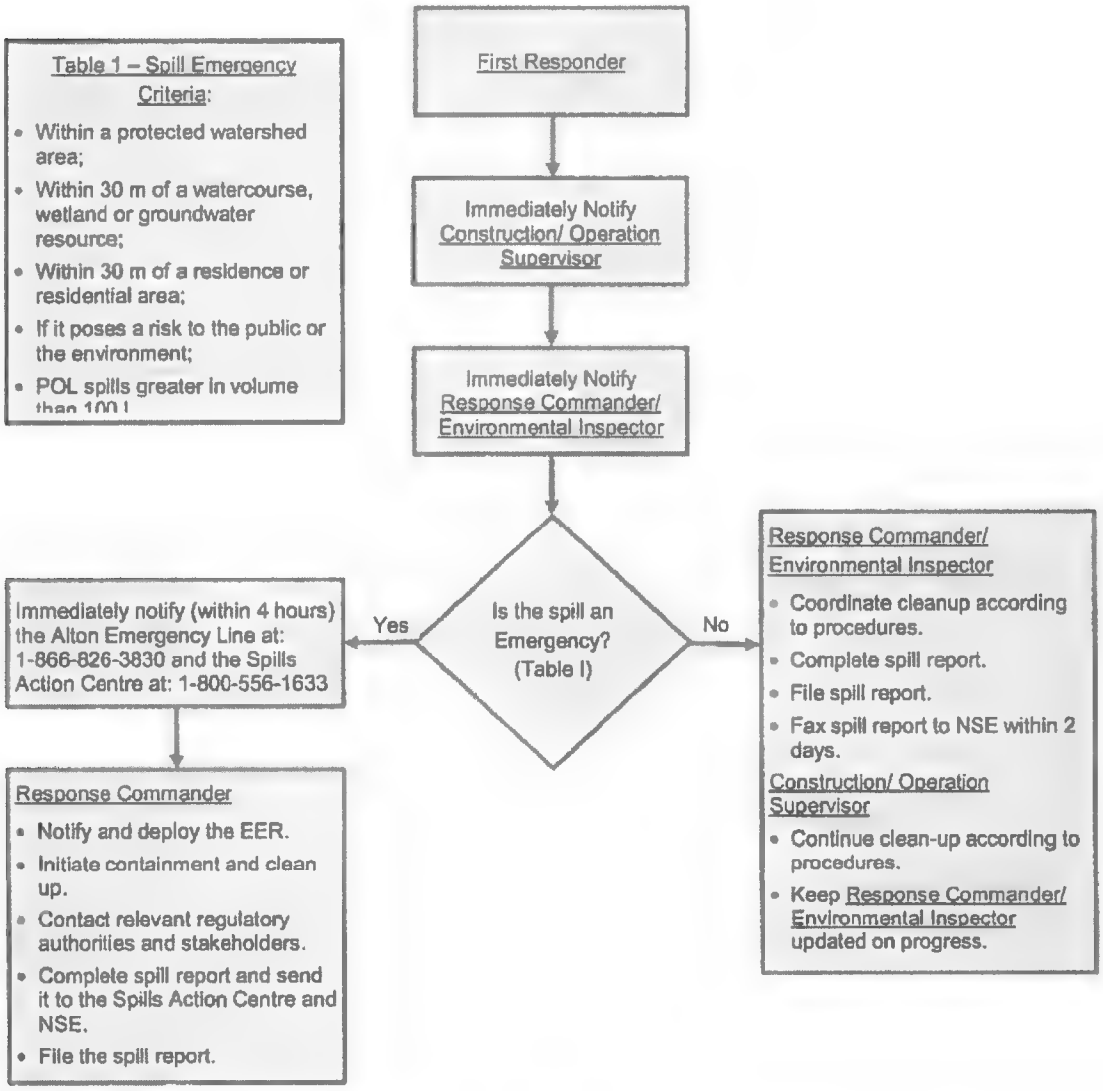


Figure 6-2: Emergency Spill Response Flow Chart

6.4.2 NOTIFICATION PROCEDURES

Internal Procedures

In the event of an emergency, the first person on the scene will:

a) Implement the appropriate safety procedures and notify the Environmental Inspector;

b) Reference C-1, Spill Response Flow Chart; and

c) Retain the appropriate employees/contractors to contain and remediate the spill.

Once Alton is notified by its employees or other sources, the EERT will be available immediately to engage the emergency response and contingency plan. The EERT will be chosen by Alton prior to site operations. Spills considered as an Emergency Spill will be reported to the Environmental Inspector and EERT immediately. Spills are designated as emergencies under the following conditions:

a) Located within a protected watershed area;

b) Located within 30 m of a watercourse, wetland, or groundwater resource;

c) Located within 30 m of a residence or residential area;

d) If it poses a risk to the public or the environment; and

e) POL spills greater in volume than 100 L.

A 24-hour AltaGas telephone number 1-866-826-3830 will be available for emergencies during project operation.

External Procedures

A list of relevant government agencies and phone numbers are provided in the EMP, Section 4.5 in case of an emergency. Regulatory agencies are to be contacted by Company personnel, as required.

6.4.3 REHABILITATION

In the event of an environmental emergency, Alton will ensure the following:

a) Contaminant concentrations must meet remediation objectives (background levels, generic guidelines or site-specific risk-based objectives) as defined by applicable regulation standards, including NSE Environmental Quality Standards (2013) and CCME Guidelines (1999);

b) Any residual contamination must not adversely affect current receptors or other potential receptors possible under the existing land use; and

c) Capability of the affected area must not be any more limiting after remediation than before the spill.

Spills must be contained as quickly as conditions allow. The following guidelines will apply:

a) Containment measures will immediately commence to limit the spread to an area of environmental concern (i.e., wetland);

b) Any contaminated soil or vegetation, as well as sorbent material, will be collected and disposed of at an approved waste facility;

c) If birds, other wildlife, or sensitive habitats (wetlands) are affected, Alton will be responsible for the clean-up and restoration of the affected habitats or wildlife;

d) If spills occur on water, containment will be achieved by blocking nearby culverts and using sorbent booms and pads, or straw bale filter dams;

e) Traffic will be restricted at or near the contaminated soils;

f) Employees, general public, contractors and wildlife will be restricted from entering the affected area by fencing, if required; and

g) In the unlikely event that a hazardous material spill does not get contained or remediated at the source, a monitoring plan including ground water quality will be implemented.

6.4.4 DISPOSAL

Soils contaminated with hydrocarbons or hazardous chemicals will be excavated and transported to an approved waste management facility (e.g., Clean Earth Technologies) via dump trucks or 4 x 4 trucks. Waste disposal contractors in the region include but are not limited to Industrial Hydrovac, Clean Earth, Jamesway Environmental, or Bun-rich Trucking Limited (See EMP – Section 5.5 for contact information). Spills such as POLs may require regulatory notification and/or approval; therefore it is recommended that if a spill occurs regulatory agencies be consulted through the Environmental Inspector.

6.4.5 REPORTING

Spill events and responses will be documented in a report outlining the spill type, location, cause of spill, clean-up, and remediation procedures undertaken. Other details to be included in the report can be found under Reporting (Section G) in Nova Scotia Environment's Contingency Planning Guidelines. If the spill is deemed an environmental emergency, Alton will ensure that a copy of the report is sent to appropriate stakeholders, which may include NSE, DFO, NSDLF, and Aboriginal Affairs. It is the responsibility of the Environmental Inspector during construction and the operations manager during operation to ensure that a report is prepared and submitted to the relevant agencies and stakeholders.

6.5 FIRES

6.5.1 FIRE PREVENTION

All necessary resources will be available to prevent and effectively respond to fires, and all measures will be taken to comply with the Nova Scotia Forest Fire Protection Regulation. Company and Contractor personnel will be trained in fire prevention and response in accordance with this EPP and the NS Forest Fire Protection Regulation.

The following fire prevention methods will be implemented to minimize the potential for fires during construction.

a) Smoking will be restricted to designated areas on site and within vehicles. No smoking will be permitted outside of designated areas on the property and when the fire hazard is high or extreme;

b) Exhaust and engine systems on all equipment and vehicles will be maintained in good working condition. When the fire hazard is high, parking of vehicles on stubble or tall grass will be limited to the extent practical;

c) Construction equipment will be equipped with spark arrestors;

d) At a minimum, each crew will carry two shovels, one fully charged fire extinguisher, and one two-way radio to enable a first response to fires;

e) All vehicles and mobile equipment will carry a fully-charged fire extinguisher; and

f) During clearing, a water truck will be assigned to the construction site when the fire hazard is high or extreme. All contractor personnel will be trained in the fire response measures and use of related equipment.

6.5.2 FIRE RESPONSE AND REPORTING

All fires will be reported to 911 and the appropriate Regional Fire Officers (i.e., local fire departments and NSDLF Regional Office).

Accidental fires will fall into one of two categories:

i. Non-forest fires (i.e., localized fires associated with equipment or in non-forested areas); or

ii. Forest fires (i.e., fires not localized in equipment and/or adjacent to forested areas of the site).

Non-forest Fires (equipment, pipeline or buildings):

The following actions will be taken in the event of a non-forest fire.

a) Notify nearby personnel;

b) Onsite personnel will take immediate steps to extinguish the fire using available extinguishers or fire hoses;

c) If the fire cannot be contained, phone 911 then the local fire department; and

d) The emergency phone number(s) for the local fire department will be confirmed by the Contractor prior to construction of each working section.

Forest Fires:

The following actions will be taken in the event of a forest fire or fire that could threaten forest resources.

a) The fire will be reported immediately to 911 and/or the local NSDLF Regional Office at 1-902-893-6350. The emergency phone numbers will be confirmed by the Contractor and/ or Response Commander; and

b) When reporting the fire, provide the following information:

i Your name;

ii Your telephone number;

iii Time the fire was detected;

iv Exact location of the fire;

v Description of what is burning;

vi Size of the fire;

vii Whether anyone is fighting the fire; and

viii Access to the fire.

6.5.3 FIRE RESPONSE ACTION PLANS FOR CONSTRUCTION

A Fire Contingency Plan will be provided by the Contractor prior to clearing/construction that will indicate measures to be taken to ensure timely and effective response to fires and to meet all applicable provincial regulations. These measures will be influenced by the timing and location of clearing/construction and the risk of fire. The Fire Contingency Plan must be developed in consideration of the following:

a) The Contractor will ensure all necessary fire-fighting equipment is available at the job site and will appoint a Fire Boss (i.e., onsite foreman). The Fire Boss will be familiar with fire-fighting techniques and equipment and will be responsible for ensuring adequate fire-fighting equipment is on hand and operational at the work site;

b) A list of 24-hour fire dispatch coordinators and regional helicopter companies' telephone numbers will be developed and posted at the job site;

c) In the event of a fire, the Fire Boss will inspect the fire site and take charge of directing suppression measures;

d) Fire suppression measures will be implemented upon detection of a fire;

e) The Fire Boss will report forest fires or fires that cannot be contained to 911 or the NS Forest Fire Center at 1-800-565-2224;

f) The Fire Boss shall report any fires and relevant information to the Environmental Inspector and/or Construction Supervisor, any onsite occupants, as well as the appropriate government agencies to request assistance as needed;

g) The Fire Boss shall deploy fire-fighting equipment and crew to plow or clear fire breaks or extinguish the fire directly if possible and safe to do so;

h) Forest fires will be managed by NSDLF. All equipment and personnel in the area of the fire shall be made available to NSDLF to assist in firefighting;

i) Mobile equipment and materials, including explosives or flammable materials and vehicles, shall be promptly moved to a safe location;

j) If the Contractor's resources are inadequate, the Fire Boss shall deploy additional equipment or materials and/or request additional resources as required from local authorities;

k) Fire suppression measures shall continue until the fire is extinguished or until otherwise notified by the local fire department, Regional District or provincial/territorial Forest Service; and

l) The Fire Boss shall ensure the burn area is monitored and the fire has been extinguished.

6.5.4 FIRE RESPONSE ACTION PLANS FOR OPERATION AND MAINTENANCE

A fire may result from the ignition of escaping gas, or may be unrelated to natural gas pipeline.

The Alton representative at the scene will evaluate the situation and report immediately to the on-site emergency response commander.

If the emergency is a fire or potential fire in close proximity to the pipeline, the closest person to the shut off valve will close off the main source of fuel. Equipment will be housed in a lockable building and the site will be fenced. It will be Alton's full responsibility to fix the natural gas pipe if damaged.

If assistance is required at the scene, arrangements will be made through the Manager of Operations or designate.

Ensure that natural gas appliances and piping are left intact until an investigation is conducted by the Fuel Safety and Fire Department authorities. Complete any appropriate report(s) required.

6.6 EXTREME WEATHER AND SILTATION

In preparation for extreme weather events, measures will be taken to minimize potential environmental effects. If conditions exist during an extreme weather event that would jeopardize worker safety or compromise environmental protection measures in place and pose an undue risk to the environment during construction, the Contractor will suspend work (i.e. clearing/construction may be halted during extreme wet weather events).

The Contractor will implement the following environmental protection measures in response to extreme precipitation and/or thaw events.

a) Runoff controls shall be implemented to limit or contain soil movement from the construction site where practical. Flow checks will be constructed in ditches, swales, or chutes to reduce hydraulic gradient and flow velocity to minimize the potential erosion of the channel;

b) Cross ditches will be excavated or existing ditches reinforced to divert runoff away from watercourses and wetlands;

c) Existing erosion and sediment control measures will be monitored to determine adequacy during an extreme precipitation and/or thaw events; and

d) Containment areas for POLs and hazardous materials will be monitored after extreme precipitation events to ensure sufficient freeboard remains (0.5 m).

Additional siltation control measures will be implemented prior to extreme weather events in addition to ongoing erosion and sediment control measures indicated in the Erosion and Sediment Control Plan.

Even with appropriately installed erosion and sediment control measures, extreme runoff events could result in the collapse of sediment control fencing, slope or trench failures and other problems which could lead to siltation of watercourses. In the event that siltation to a watercourse occurs, construction should cease immediately until the situation is rectified. Immediate action should be taken to install temporary measures to contain the extent of erosion and sedimentation as quickly as possible. Temporary protection measures such as sediment control fencing, sand bags, riprap, logs or planks should be utilized.

When site conditions permit, permanent protection measures should be installed on erodible surfaces including hydroseeding, erosion control matting and rip-rap. Additional layers of sediment control fencing or sturdier type of base fencing may be appropriate in erosion prone areas until vegetative cover is established.

If siltation occurred due to a construction related activity (e.g. dewatering), the activity should be halted immediately until the situation is rectified. A supply of emergency materials (i.e., sediment control fencing, rip rap, shovels etc.) should be readily available on-site. The contractor must be fully prepared to respond quickly to siltation events.

6.7 NATURAL GAS PIPELINE LEAKS

A custody transfer metering station will be constructed at the tie-in point of the 16" steel gas pipeline and the M&NE Lateral. This station will measure and control the natural gas flow to and from the storage cavern system. An ESD (Emergency Shutdown) system will allow for the isolation of the Alton Natural Gas Storage Pipeline in case of an emergency. A similar control and ESD system will be installed at the Alton Natural Gas Storage Site. If an emergency occurs, Alton will close off the main source of fuel. These valves can immediately shut off the flow of gas in the pipeline, and can be controlled remotely from the pipeline operator's control centre.

All equipment will be housed in a lockable building and the site will be fenced. It will be Alton's responsibility to fix the natural gas pipe if damaged.

Natural gas pipeline leaks must be reported to Alton, however, they may also be initially reported to other emergency responders; if so, first responders are requested to contact Alton, and local 911.

6.7.1 EMERGENCY RESPONSE AND REPORTING

If the first person on the scene is not an Alton Employee, the procedures below will apply:

The person receiving the call will record the following pertinent information:

a) Type of emergency (i.e. fire, explosion, etc.);

b) Name of caller and address/location of incident;

c) Phone number where the caller can be reached; and

d) Time of call, and time incident occurred.

If considered necessary the person receiving the call will:

a) Instruct the caller to remain in a safe location where they can be contacted by phone if possible;

b) Instruct the caller that no one is to return to the vicinity of the gas escape and that no one is to start, turn off, or move equipment;

c) Verify from the caller if the Police, Fire Department, and/or ambulance have been called. Notify if necessary;

d) Dispatch an Alton Gas Representative to the scene; and

e) Notify the Manager, Operations or designate.

If a large amount of natural gas is releasing into the atmosphere, the Alton Representatives at the scene will take the following steps as required in coordination with other Emergency Responders on site:

i. Establish a restricted zone around the area;

ii. Eliminate all possible sources of ignition;

iii. Ensure that natural gas is not migrating into, or otherwise entering, buildings in the area;

iv. Assess the situation and contact the Manager, Operations or designate;

v. Request assistance;

vi. Evacuate the buildings in the area, if deemed necessary;

vii. Shut off gas service to all buildings in the area, if deemed necessary;

viii. Stop flow of gas to the escaping section of the system by squeezing or by isolation;

ix. Facilitate repairs; and

x. Complete the appropriate report(s) required. Notify the Nova Scotia Utility and Review Board (902-424-4448).

6.8 EXPLOSIONS

Explosions will vary as to type and severity. An explosion or its potential damage should not be underestimated.

6.8.1 RESPONSE PROCEDURES

If the first person on the scene is not an Alton Gas Employee the procedures below will apply:

The person receiving the call will record the following pertinent information:

a) Type of emergency (i.e. fire, explosion, etc.);

b) Name of caller and address/location of incident;

c) Phone number where the caller can be reached; and

d) Time of call, and time incident occurred.

If considered necessary the dispatcher will:

a) Instruct the caller to remain in a safe location where they can be contacted by phone if possible;

b) Verify from the caller if the police, fire department, and/or ambulance have been called, and will notify if necessary;

c) Dispatch an Alton Gas Representative to the scene as soon as possible; and

d) Notify the Manager, Operations or designate.

Upon arrival on the scene, the Alton Gas Representative shall make contact with the on-site emergency response officials. Actions that may need to be taken to prevent further explosions or fires include:

a) Stop the flow of gas;

b) Evacuate nearby building(s) and warn occupants not to smoke or operate electrical switches;

c) On-site investigation shall be conducted;

d) A systematic check of all buildings in the immediate vicinity, with an approved gas detection device, will be done to detect any concentrations of gas;

e) If it is determined to be an underground leak from the gas system which poses a hazard, the area will be isolated by stopping the flow of gas until repairs are completed;

f) An odourant intensity test shall be taken at a service in the vicinity of the incident. Test results and address of test location is to be recorded on the Incident Report Form. Caution: If the escaping gas is burning safely, leave the flame alone until the supply of gas in the line can be stopped;

g) If there is no evidence of natural gas in the building(s) or the immediate vicinity, the cause of the explosion will be determined by the appropriate officials;

h) Support the investigation as requested by officials on site, and ensure that natural gas appliances and piping are left intact until an investigation is conducted by the Fuel Safety and Fire Department officials. Complete any appropriate report(s) required;

i) The Manager, Operations or designate shall be called, informed of the situation and advised if additional support is required; and

j) The Manager, Operations will notify company and regulatory officials, as outlined in Section 4 of the EMP.

6.9 CIVIL DISTURBANCES

The best defense against civil disturbance is understanding the motive behind it. Liaising with other agencies is essential to ensure mutual planning and objectives. When confronted with civil disturbances, use the same emergency plan and organization charts that are used in other emergencies.

BMPs for Civil Disturbances include:

a) Post "No Trespassing" signs on all barriers surrounding Alton Gas property and inspect security fences. Use high security locks on all gates;

b) Where possible, illuminate outside walls, fences, walkways, and critical inside areas;

c) Use screening to protect light fixtures and windows in critical areas;

d) Develop a procedure of identification for personnel crossing police lines to enter critical areas;

e) Control the movement and parking of vehicles;

f) Do not accept parcels or materials that are not readily identifiable; and

g) Ensure the safety of company records.

6.10 ODOURS AND FUMES

6.10.1 RESPONSE PROCEDURES

Upon arrival at the area where a suspected odour has been encountered, the Alton Gas Representative will park their vehicle at a safe distance, in a safe location taking into consideration wind direction and other local conditions. The surroundings will be observed to determine if any construction or other unusual activity has recently taken place in the area. The approved gas detection device will be switched on, purged in clean air and bump tested. If a leak is detected by the device, the response procedures in Section 6.7 will be implemented.

6.11 WILDLIFE ENCOUNTER

Company and Contractor personnel will adhere to the following principles:

a) No personnel will approach, feed, or harass wildlife;

b) Equipment and vehicles will yield to wildlife on the property;

c) The Company and Contractor will ensure no firearms are permitted on the RoW. Further, hunting by Company or Contractor personnel will be forbidden during construction;

d) Any equipment or vehicle collisions with larger wildlife (*i.e.*, deer) will be reported to NSDLF wildlife officers;

e) Incidents involving nuisance wildlife will be reported to NSDLF wildlife officers; and

f) The CWS and NSDLF wildlife officers will be contacted regarding encounters with wildlife species at risk or of conservation concern. Guidance as to the appropriate course of action will be provided by these authorities.

6.12 HERITAGE AND ARCHAEOLOGICAL DISCOVERY

An Archaeological Contingency Plan provides emergency measures to mitigate impacts on archaeological or heritage resource finds during construction monitoring. Background research and subsurface (shovel) testing indicate that there is low potential for archaeological resources present in the Project area. Additional studies included subsurface (shovel) testing is anticipated in the Spring/Summer of 2019 and this report will be updated to reflect those findings. However, if a valuable artifact is discovered the following Archaeological Resource Response Action Plan will be applied.

6.12.1 ARCHAEOLOGICAL RESOURCE RESPONSE ACTION PLAN

The onsite Construction Supervisor/employees have the right to stop work in the event of any archaeological or heritage resource found during construction. In the event of a find during construction, the following procedures shall be adhered to:

a) Work shall be halted immediately and notification shall be made to the Environmental Inspector;

b) The immediate area of the discovery, along with an appropriate buffer zone (e.g., 5-10 m radius) shall be cordoned off with stakes and snow fencing or flagging tape;

c) The Company will contact the Nova Scotia Museum (Manager, Special Places) and the project archeologist to determine if it is an archeological site; and

d) An initial investigation shall be carried out by a qualified archaeologist who will report on the findings to the relevant authorities.

In the event of the discovery of suspected human remains or burial site, the following procedures shall be adhered to:

a) Work shall cease in the immediate area of the discovery and notification will be provided to the Environmental Inspector;

b) If remains are found in association with heavy equipment, the equipment shall not be moved by the Contractor, as physical evidence may be destroyed;

c) The site, including the heavy equipment, if necessary, shall be secured by the Contractor with snow fencing or flagging tape. The suspected remains or burial site will be covered with a tarp;

d) The Company will contact the nearest detachment of the RCMP who will contact the appropriate office of the Coroner; and

e) All work shall cease in the immediate area of the discovery until such time the Company, having consulted with the Nova Scotia Museum (and other authorities as relevant) advises personnel as to the disposition of the discovery and authorizes renewal of the work.

6.13 CLEARING CONTINGENCY PLAN

It is common practice to conduct tree clearing activities during the winter months, outside of the breeding season for most birds (April 1st to August 31st) in order to comply with the *Migratory Bird Convention Act* (MBCA). It is also preferable to clear during this time period given the ground is frozen and allows for greater support for clearing equipment and minimizes ground disturbance. However, for various reasons, clearing during the preferred season is not always possible and must be undertaken at other times to prevent significant project delays. While it is preferred to limit clearing to outside the April 1st to August 31st timing window, if this is not possible, the Company must consult with the CWS, NSE and NSDLF for suitable monitoring and mitigation plan for breeding bird activities. This could include nest surveys conducted by qualified personnel and possibly establishing appropriate buffers around active nest sites until the young have fledged.

6.14 HORIZONTAL DIRECTIONAL DRILLING (HDD)

6.14.1 FRAC-OUT CONTINGENCY PLAN FOR HORIZONTAL DIRECTIONAL DRILLING

Frac-out, or inadvertent loss of drilling fluids to the aquatic environment within the stream channel is a significant concern when HDD methods are used to install a pipeline under sensitive habitats, watercourses, and areas of concern for cultural resources. Typically, the HDD procedure uses bentonite slurry containing a fine clay material and polymer additives as a drilling lubricant to transport the cuttings to the surface and to condition the bore hole. The bentonite is non-toxic and commonly used in farming practices, but benthic invertebrates, aquatic plants and fish and their eggs can be smothered by the fine clay particles if the bentonite were to be discharged in high concentrations into the waterways adjacent the drill path. The procedures for monitoring and managing an inadvertent loss of drilling fluids from the borehole through the geological formation to the natural surface waters (typically called a "frac-out") must be addressed in a Frac-Out Contingency Plan designed specifically for the Horizontal Drilling Program in question.

The purpose of the Alton HDD Contingency Plan or "Frac-Out" Plan is to:

a) Minimize the potential for a frac-out or loss of drilling fluids associated with horizontal directional drilling (HDD) activities;

b) Provide for the timely detection of frac-outs to minimize the extent of the loss of fluids and exposure of the natural environment;

c) Protect areas that are considered environmentally sensitive (streams, wetlands, and other biological resources) in the vicinity of the HDD activities;

d) Ensure an organized, timely, and "minimum-impact" response in the event that a frac-out or other release of drilling fluids (drilling mud) should occur;

e) Ensure that appropriate notifications are made promptly to the appropriate regulatory authorities (NSE) and Environmental Inspectors (e.g., Designated Biologist, Project Construction Supervisors), and to appropriate regulatory agencies within 24 hours; and

f) Ensure that required documentation regarding the frac-out incident, including the nature and extent of the fluid loss and the response is completed and submitted to the appropriate authorities.

6.14.2 CONTINGENCY RESPONSE PLAN

Once a frac-out has been identified, the HDD Contractor will apply the terms of the Contingency Response Plan, as follows:

a) All drilling-related work in the immediate vicinity of the HDD activity and frac-out shall stop, including the recycling of drilling fluids (mud/lubricant). Once the drilling fluid pump has been shut down and the pressure of the fluid in the borehole has been relieved, the hydrostatic pressure of surface or ground water above the pipe will keep excess drilling fluid from escaping through the fracture in the overburden into the environment; and

b) The HDD Contractor and the Environmental Inspector shall determine the location and extent of the frac-out and report the event to Alton, and to the environmental regulators.

Terrestrial Frac-Out

If the frac-out is terrestrial (located on land beyond the ordinary high water mark (OHWM) of the stream channel), the HDD Contractor shall:

a) Isolate the area with hay bales, sand bags, and silt fencing to contain the drilling fluids;

b) The Environmental Inspector will consult with NSE and adjacent property owner representatives regarding the next appropriate action among the following:

   i A mobile vacuum truck will be used to pump the escaped drilling fluids from the contained area and recycled to the HDD Contractor's return pit; or

   ii The drilling fluid will be left in place to avoid potential damage to the environment from vehicles entering the area.

c) Once excess drilling fluids have been removed, the area will be seeded and/or replanted using species similar to those in the adjacent area, or allowed to regenerate from existing vegetation; and

d) Re-vegetated areas will be monitored twice per year for two years subsequent to frac-out to confirm revegetation has been successful.

Aquatic Frac-Out

If the frac-out is aquatic (i.e., located under the water surface):

a) Monitor the frac-out for four hours to determine if the drilling fluid congeals (bentonite will usually congeal, effectively sealing the frac-out location);

b) The environmental inspector will consult with NSE and property owner representatives regarding next appropriate action among the following:

   i If drilling fluid congeals, take no other action that would potentially suspend sediments in the water column;

   ii If drilling fluid does not congeal, erect isolation/containment within the environment such as using underwater booms and silt curtains will be used to prevent the escape of fluid into the adjacent aquatic environment; or

   iii If the fracture through which the fluid is escaping becomes excessively large, a qualified spill response team shall be called in to contain and clean up excess drilling fluids in the water. Phone numbers of the qualified spill response team assigned to the project will be maintained at the HDD installation site at all times.

After the frac-out has been stabilized and any required removal of drilling fluids has been completed, the HDD Contractor and the Environmental Inspector shall document pre-cleanup and post-cleanup conditions with photographs and prepare a Frac-Out Incident Report describing time, location, actions taken to remediate frac-out and measures implemented to prevent recurrence. Incident report will be provided to the Owner, the Owner's Representatives on-site and the environmental regulators (i.e., NSE), as part of project compliance, no more than 30 days after the frac-out incident.

Once the frac-out has been stabilized and all necessary remediation measures complete, the Contractor will be permitted to complete a new pipeline installation using along the same horizontal alignment, but using an alternative, deeper alignment that has been approved by the Project Engineers.

7 ENVIRONMENTAL MONITORING AND REVIEW

In order to confirm the environmental management practices and mitigation measures described in this EPP are implemented properly, the following programs were developed. The follow-up monitoring will be used to determine the success of these practices and measures at achieving the Project's environmental protection goals.

7.1 GROUNDWATER QUALITY MONITORING

As part of the Environmental Assessment Approval a pre-blast survey for wells found within 800 m of any blasting activities was requested. The baseline groundwater monitoring data has been gathered by WSP on behalf of Alton. Several wells have been found within 800m of the proposed gas pipeline as shown in the Field Truthed Ground Water Wells Drawing C-3. Alton does not anticipate any blasting will be required, however if blasting is deemed necessary, any well within 800 m will be surveyed prior to the commencement of blasting.

Groundwater quality has the potential to be affected by a release of POLs, other compounds, or a release of firefighting chemicals which could theoretically degrade local and down-gradient groundwater quality to below acceptable criteria. In the unlikely event that groundwater is affected, the following mitigation measures provided in the EPP, including the BMPs for Storage, Handling, Transfer of POLs and Other Hazardous Materials, monitoring and the contingency response plans will be used.

7.2 SURFACE WATER QUALITY MONITORING

Construction in the general vicinity of watercourses has the potential to affect water quality and subsequently fish and fish habitat in the event that sediment laden runoff enters a watercourse. Adherence to the mitigation measures provided in this EPP, including monitoring of weather forecasts, monitoring and maintenance of erosion and sediment control measures before, during and after rain events, will help protect water quality and fish and fish habitat at the crossing location and downstream.

In particular, during pipeline installation activities, the Environmental Inspector will conduct inspections prior to and during/after precipitation events forecasted to be greater than 25 mm.

During these inspections, water samples for total suspended solids (TSS) analysis will be collected at potential runoff areas into watercourses or wetlands both upstream and downstream of the crossing. The sampling stations will be selected by the Environmental Inspector based on the sensitivity of the receiving environment, the potential for erosion (e.g., steep slope, etc.), and the results from previous sediment monitoring. If a release of sediment laden runoff occurs in a watercourse or wetland, the Company or Environmental Inspector will collect water samples for total suspended solids (TSS) analysis both upstream of the crossing and downstream of the sediment release (i.e., centre of visible mixing point).

The following provincial discharge limits must be met for any water which is discharged from the site to a watercourse or wetland:

Clear Flows (Normal Background Conditions):

a) Maximum increase of 25 mg/L from background levels for any short-term exposure (24 hours or less); and

b) Maximum average increase of 5 mg/L from background levels for longer term exposure (inputs lasting between 24 hours and 30 days).

High Flow (Spring Freshets and Storm Events):

a) Maximum increase of 25 mg/L from background levels at any time when background levels are between 25 mg/L and 250 mg/L; and

b) Shall not increase more than 10% over background levels when background is >250 mg/L.

Any exceedance of the TSS provincial discharge limits into a watercourse or a wetland will be reported to NSE (within one week of receiving the results) and the written sample results will be sent to NSE (see contact details below).

Nova Scotia Department of the Environment - Truro:
Kelly McNally, Inspector Specialist
Office: (902) 893-5880
kelly.mcnally@novascotia.ca

7.3 EROSION AND SEDIMENT CONTROL

Inspections of erosion and sediment controls will be conducted during construction and operation until it has been determined that the site is stabilized (i.e. revegetation is sufficiently established to effectively prevent erosion) and that no negative long-term impacts to watercourses or wetlands exist. In particular, inspections will focus on storm events. If required, surface water sampling for TSS analysis (see Section 7.2) will be conducted until the results confirm that there are no significant ongoing sediment impacts down gradient of the project site as a result of the pipeline installation. The Erosion and Sediment Control device inspections will be noted on the Environmental Inspectors Daily Report (Section 8) and any deficiencies will be noted and brought to the attention of the construction supervisor.

8 FORMS

To aid the user, and for the benefit of the Alton Environmental Inspector, forms that will be required to be filled out during the construction of the pipeline are included in the EPP. The Environmental Inspector will be responsible for ensuring that copies of these forms are readily available, should they be required. These sample forms are examples only and the forms that will be used on site may be different. These forms will include, but are not limited to, the following:

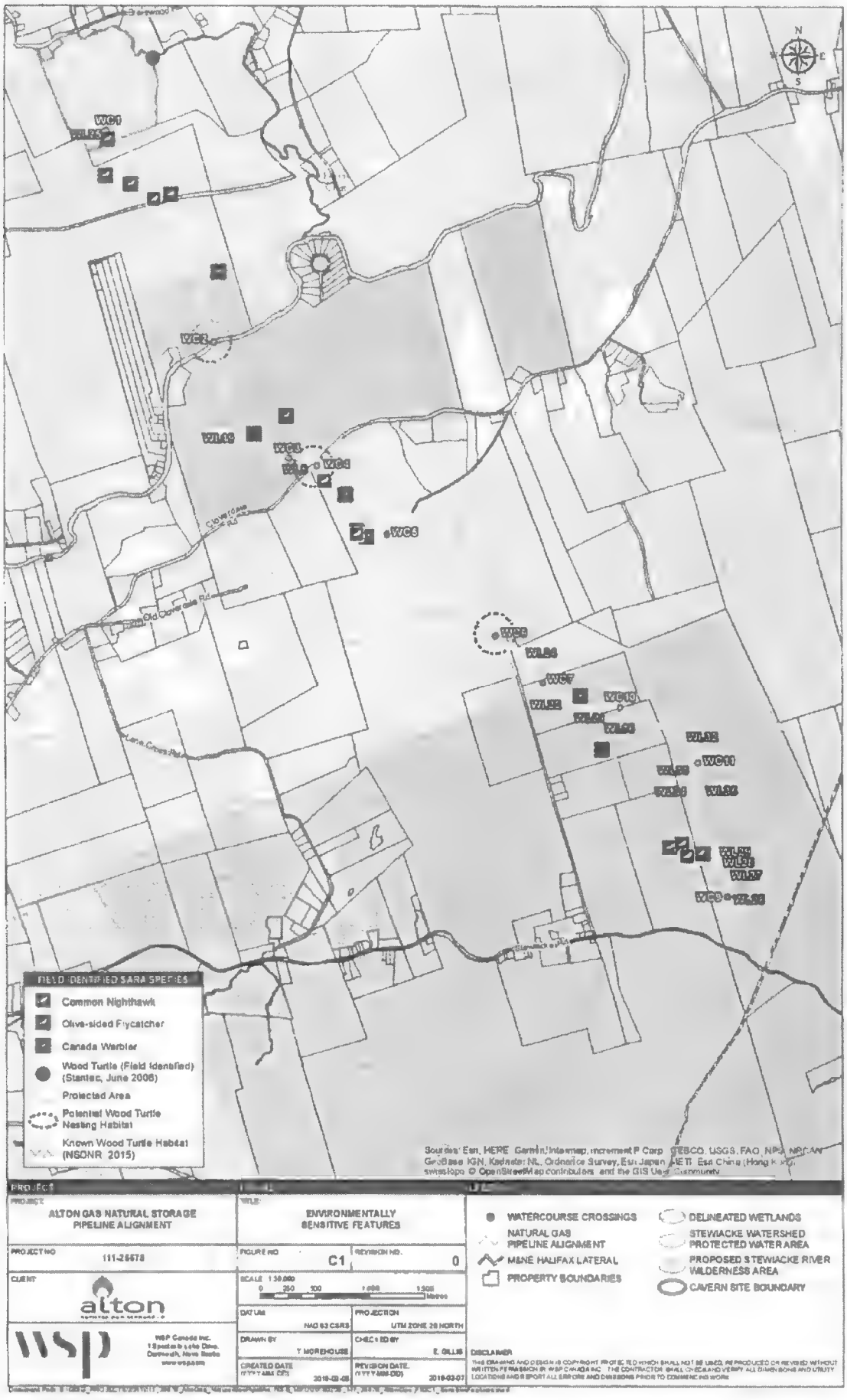
a) Alton Environmental Inspector's Daily Report;

b) Watercourse Crossing Report (Pipeline Installation); and

c) Hydrostatic Water Quality Testing Report.

APPENDIX

C-1 DRAWINGS



	PID	Address	Approximate Distance to Pipeline (m)	Well Type
1	30423018	450 Brentwood Road	640	Dug
2	30091336	475 Brentwood Road	770	Unknown (suspected)
3	30311567	528 Brentwood Road	884	Dug
4	30291286	599 Brentwood Road	1100	Dug
5	30156600	307 Hemlock Loop	340	Unknown (suspected)
6	30156584	329 Hemlock Loop	380	Unknown (suspected)
7	30156741	337 Hemlock Loop	410	Unknown (suspected)
8	30156574	349 Hemlock Loop	470	Unknown (suspected)
9	30156446	365 Hemlock Loop	560	Unknown (suspected)
10	30156515	381 Hemlock Loop	1090	Unknown (suspected)
11	30156541	389 Hemlock Loop	1150	Unknown (suspected)
12	30156527	373 Hemlock Loop	1210	Unknown (suspected)
13	30156518	396 Hemlock Loop	1270	Unknown (suspected)
14	30156501	381 Hemlock Loop	1250	Unknown (suspected)
15	30156561	397 Hemlock Loop	1290	Unknown (suspected)
16	30156485	401 Hemlock Loop	1440	Dug
17	30156477	394 Hemlock Loop	1280	Unknown (suspected)
18	20456077	1281 Cloverdale Road	480	Unknown (suspected)
19	30279410	836 Stewiacke River Park Road	540	Unknown (suspected)
20	20462470	760 Stewiacke River Park Road	690	Dug
21	30148474	234 Old Cloverdale Road	1430	Unknown (suspected)
22	20031375	278 Dawson Road	700	Dug
23	30278487	47 Dawson Road	1250	Dug
24	20079208	2761 Stewiacke Road	1400	Dug

PROJECT
ALTON GAS NATURAL STORAGE PIPELINE ALIGNMENT

PROJECT NO.: 111-28678

CLIENT: alton

WSP Canada Inc.
15 Spectacle Lake Drive,
Dartmouth, Nova Scotia
www.wsp.com

TITLE
GROUNDWATER WELLS

FIGURE NO.: C2
REVISION: 0

SCALE: 1:30,000
0 250 500 1,000 1,500 Meters

DATUM: NAD 83 CSRS
PROJECTION: UTM ZONE 20 NORTH

DRAWN BY: T MORRISSEY
CHECKED BY: E. GILLIS

CREATED DATE (YYYY-MM-DD): 2019-02-28
REVISION DATE (YYYY-MM-DD): 2019-03-07

LEGEND
- WATERCOURSE CROSSINGS
- NATURAL GAS PIPELINE ALIGNMENT
- M&NE HALIFAX LATERAL
- PROPERTY BOUNDARIES
- DELINEATED WETLANDS
- STEWIACKE WATERSHED PROTECTED WATER AREA
- PROPOSED STEWIACKE RIVER WILDERNESS AREA
- CAVERN SITE BOUNDARY

PROJECT

PROJECT: ALTON NATURAL GAS STORAGE: PIPELINE ALIGNMENT

PROJECT NO.: 111-24478

CLIENT: alton

wsp

WSP Canada Inc.
1 Spectacle Lake Drive,
Dartmouth, Nova Scotia
www.wsp.com

FIGURE

TITLE: OVERVIEW
NATURAL GAS PIPELINE ALIGNMENT & FIELD IDENTIFIED WETLAND & WATERCOURSES

FIGURE NO: C3

REVISION NO: 0

SCALE: 1:25,000
0 250 500 1,000 1,500 Metres

DATUM: NAD 83 CSRS

PROJECTION: UTM ZONE 20 NORTH

DRAWN BY: T MORSHOUSE

CHECKED BY: E GILLIS

CREATED DATE (YYYY-MM-DD): 2019-01-09

REVISION DATE (YYYY-MM-DD): 2019-01-10

LEGEND

- WATERCOURSE CROSSINGS
- WATERCOURSE
- NATURAL GAS ALIGNMENT (RE-ROUTE #2)
- NATURAL GAS ALIGNMENT (RE-ROUTE #1)
- NATURAL GAS ALIGNMENT (ORIGINAL ALIGNMENT)
- STEWIACKE WATERSHED PROTECTED WATER AREA
- PROPOSED STEWIACKE RIVER WILDERNESS AREA
- NS DNR WETLANDS (2015)
- DELINEATED WETLANDS
- PROPERTY BOUNDARIES

APPENDIX

C-2 WATER SUPPLY PROTECTION PLAN AND PROTECTED WATER AREAS REGULATIONS

Water Supply Protection Plan for Alton Natural Gas Pipeline Project

February 2013

Pages 166 to / à 182
are public-denied pursuant to section
est public-refusé en vertu de l'article

68(a)

of the Access to Information Act
de la Loi sur l'accès à l'information

APPENDIX

C-3

CONSTRUCTION DRAWINGS AND EROSION AND SEDIMENT CONTROL PLAN

APPENDIX

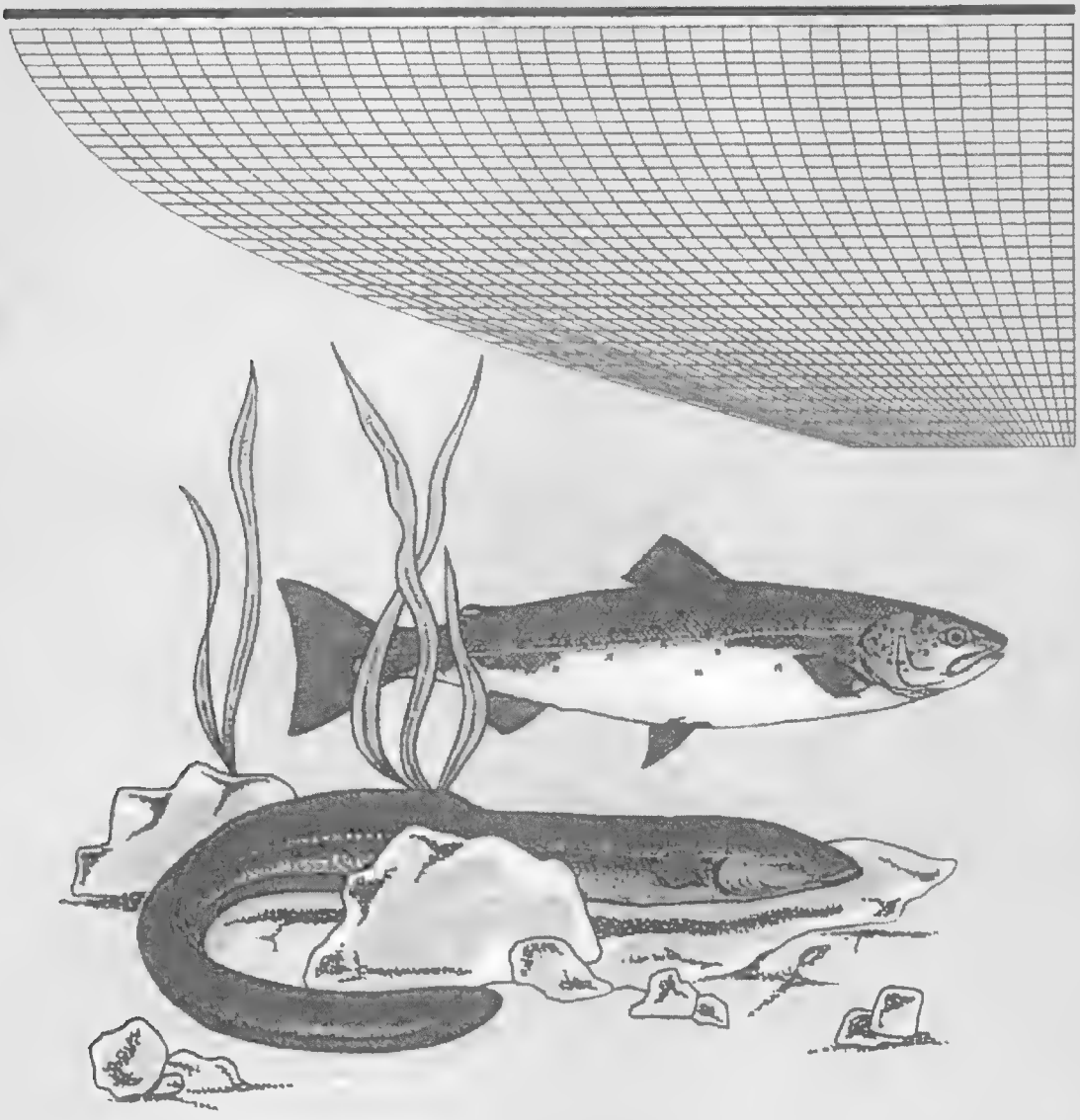
C-3 TO BE INCLUDED ONCE COMPLETE

APPENDIX

C-4 FRESHWATER END-OF-PIPE FISH SCREEN GUIDELINES

Department of Fisheries and Oceans

Freshwater Intake End-of-Pipe Fish Screen Guideline



Fisheries and Oceans Pêches et Océans

Canada

Pages 187 to / à 213
are public-denied pursuant to section
est public-refusé en vertu de l'article

68(a)

of the Access to Information Act
de la Loi sur l'accès à l'information

APPENDIX

C-5 FIELD FORMS

Environmental Inspector's Daily Report

Date: Project: Alton Gas: 111-26678

Weather:

Name: Page _ of _

Location:

Current Construction Activity:

Location - Issues	Resolutions / Mitigations

Environmental Inspector's comments and/or concerns:

Follow-up Required:

Company Site Representative's comments and/or concerns:

Environmental Inspector:

Print Signature Date

Construction Supervisor:

Print Signature Date

wsp

alton

Environmental Inspector's Watercourse (Pipeline) Crossing Report

Date: **Project:** Alton Natural Gas Storage LP

Weather: **Contractor:**

Watercourse:

Crossing Method:

Crossing Checklist	Complete	If not yet completed, explain
Pre-crossing		
-Temporary Work Room Identified		
-Topsoil stripped and managed appropriately		
- Adequate Diversion Equipment Onsite		
- Pipe Tested		
- Adequate ESC Materials Onsite		
- Spill response materials onsite		
- Valid NSE approval onsite		
- Approval conditions reviewed		
-Fish Rescue Conducted		
During Crossing		
- Adequate Pump Volume		
- Dewatering into Vegetated Area		
-Coffer Dams Stable		
-Trench Area Limited to Minimum Req'd		
-Silt Managed Prior to Dam Removal		
Post Crossing		
-No Effects to Fish Passage		
-TSS Returned to Background Levels		
Environmental Inspector's Comments:		

Company Site Representative's Comments:

Environmental Inspector:

Print Signature Date

Construction Supervisor:

Print Signiture Date

wsp

alton

Environmental Inspector's Watercourse (Pipeline) Crossing Report

Date: **Project:** Alton Natural Gas Storage LP

Weather: **Contractor:**

Watercourse:

Crossing Method:

Crossing Checklist	Complete	If not yet completed, explain
Pre-crossing		
-Temporary Work Room Identified		
-Topsoil stripped and managed appropriately		
- Adequate Diversion Equipment Onsite		
- Pipe Tested		
- Adequate ESC Materials Onsite		
- Spill response materials onsite		
- Valid NSE approval onsite		
- Approval conditions reviewed		
-Fish Rescue Conducted		
During Crossing		
- Adequate Pump Volume		
- Dewatering into Vegetated Area		
-Coffer Dams Stable		
-Trench Area Limited to Minimum Req'd		
-Silt Managed Prior to Dam Removal		
Post Crossing		
-No Effects to Fish Passage		
-TSS Returned to Background Levels		
Environmental Inspector's Comments:		

Company Site Representative's Comments:

Environmental Inspector:

Print Signature Date

Construction Supervisor:

Print Signiture Date

APPENDIX

D PERMIT PLAN AND APPROVALS

Table D-1 Environmental Permitting Plan

	NSE[1]	For direct impacts, Wetland Alteration Approvals will be required at 10 wetlands: WL 5, 19, 22, 24, 25, 26, 27, 28, 29, and 32. Additional Wetland Alteration Applications may be required for potential indirect impacts of Wetlands (WL 6, 18, 21, 23, 30, 31, 33, 34, 35, 36 and 37). See more details in Appendix C: Table 1 of the EPP	Prior to clearing and/or construction the following approvals apply: -Section 8.1 of the EA Approval Conditions: "The Approval Holder must obtain an approval from NSE for the wetland alterations, as specified in the Activities Designation Regulations.	Status: To date, all wetlands have been delineated in the field. Field baseline plots have been set up and assessed for wetlands that will be directly or potentially indirectly affected by the project, with the exception of the newly identified wetlands along Re-Route #2 (i.e. WL 32, 33, 34, 35,36 and 37). Required Actions: -Consultation with the NSE wetland specialist to determine if compensation is required; -Preparation of wetland alteration approval applications and submission; -Detailed ecological field surveys to be completed in June/July 2019, for the newly identified WLs (i.e. WL 30-37).
	NSE[1]	Watercourse Alteration Approval will be required for ten watercourse crossings WC 1, 2, 3, 4, 5, 6, 7, 9, 10, and 11. See more details in Appendix C: Table 2 of the EPP Temporary bridge approvals may be required for watercourse crossings, depending on construction plans.	Prior to clearing and/or construction the following approvals apply; -Section 5.1 of the EA Approval Conditions: "The Approval Holder must not undertake any "wet" watercourse crossing, unless otherwise approved by NSE."	Status: To date, field surveys have been completed including water quality and fish habitat assessments, with the exception of surveys along Re-Route #2 (i.e. WC 10 and 11). Required Actions: - Create an Erosion and Sediment Control Plan for each watercourse crossing, based on construction drawings. - Complete a Hydrological desktop study for a 1:2 year storm event for adequate dam and pump structures. - If temporary bridges are required for construction additional information may be required. - Preparation of the watercourse alteration approval applications and submission.
	NSE[1]	Entire Pipeline Length	Hydrostatic testing anticipated for leak detection prior to natural gas installation at pipeline. Approval required if withdrawing or diverting more than 23,000 liters of water per day, constructing or maintaining a dam, or if storing more than 25,000 cubic meters of water	Required Actions: - Select the locations of water withdrawal, - Complete a permit application for NSE approval, if required
	NSUARB[2]	Entire Pipeline	Alton's responsibility to prepare and submit the application to NSUARB with detailed design of the pipeline and emergency/contingency plans prior to pipeline operation.	Status: It is understood that no application has been submitted for the natural gas pipeline, however it is anticipated to be submitted in April 2019. Required Actions: -An application to be prepared and submitted to the NSUARB.
Activities Requiring Regulatory Approval				
	NSE[1]	Stewiacke River Wilderness Area.	EA Approval Condition 4.1 "Within four years of the date of this EA Approval, the Approval Holder must develop and implement a compensation plan that has been reviewed and approved by NSE, for impacts on the Stewiacke River Wilderness Area. This plan shall include, but may not be limited to, the securement of conservation land in the vicinity of the Undertaking for statutory protection by the province." This condition needs to be met by May 21, 2019	Status: David MacKinnon (NSE) to provide Alton with list of possible compensation plan options. Required Actions: -Consultation with NSE, -Completion of a compensation plan.
	CWS[3], NSE[1], NSDNR[4]	Entire Pipeline	EA Approval Condition 7.2: "Site preparations that include deforestation, clearing and grubbing must be undertaken between September 1st and March 30th in order to minimize impacts on breeding birds that may include endangered and threatened species listed under the Species at Risk Act and/or the Nova Scotia Endangered Species Act, unless otherwise approved by NSE" EA Approval Condition 7.3. "If site preparation activities occur between mid-July and August 31st, the Approval Holder must prepare and implement a monitoring and mitigation plan for breeding activity (i.e. nesting) pursuant to the Migratory Bird Convention Act, in consultation with DNR and the Canadian Wildlife Service"	Status: To date there is no specific schedule for clearing or grubbing, however the anticipated construction start date (including clearing) is October 2020. Required Actions: - If clearing and or grubbing is anticipated outside of the recommended window, Alton must consult with the Canadian Wildlife Service and NSDLF to develop a suitable monitoring and mitigation plan for breeding bird activities, - Once a mitigation plan is finalized, it must be submitted to NSE for review and acceptance.
	NSE[1]	Select areas of the pipeline (See Groundwater Well Survey Report, dated September 25th, 2015)	EA Approval Condition 6.1. "Prior to any blasting, the Approval Holder must conduct a pre-blast survey for water wells within 800 m of the point of blast. The survey must be conducted in accordance with the NSE "Procedure for Conducting a Pre-Blast Survey" Any water well impacts from the blasting must be corrected by the Approval Holder to the satisfaction of NSE"	Status: No blasting is anticipated. Required Actions: -Potential concern areas are identified in the Groundwater Well Survey Report, dated September 25th, 2015. -In the unlikely event blasting is required in these areas, a pre-blast survey will be required.
	NSE[1]	Public drinking water supply	EA Approval Condition 5.3. "Any environmental impacts on the public water supply for the Town of Stewiacke must be corrected by the Approval Holder to the satisfaction of NSE" EA Approval Condition 5.4 "Prior to clearing and/or construction, the Approval Holder must provide an approved security that is satisfactory to NSE. This security is to cover an alternate temporary and/or permanent drinking water supply in the event that the Undertaking impacts the public water supply" Commitments made in the Water Supply Protection Plan (Appendix C-2 of the Environmental Protection Plan).	Status: To date it has not been clarified if the Water Supply Protection Plan (Appendix C-2 of the Environmental Protection Plan) is adequate for this condition. Required Actions: -Waiting on NSE to see if more information is required.

Notes:
[1] NSE - Nova Scotia Environment
[2] NSUARB- Nova Scotia Utility and Review Board
[3] CWS- Canadian Wildlife Service
[4] NSDNR- Nova Scotia Department of Natural Resources

APPENDIX

E

ALTON NATURAL GAS PIPELINE ENVIRONMENTAL ASSESSMENT MI'KMAQ COMMUNICATIONS PLAN

alton
NATURAL GAS STORAGE L.P.
an AltaGas business

Condition #11.1 – Alton Natural Gas Pipeline Environmental Assessment
Mi'kmaq Communication Plan

February 4, 2019

Contact:

Tim Church,
President, Alton Natural Gas Storage LP &
Vice-President, Stakeholder Relations
AltaGas Ltd.
tim.church@altagas.ca

Mi'kmaq Communication Plan
Condition 11.1 of the Alton Natural Gas Pipeline Environmental Assessment Approval

Submitted to the Nova Scotia Department of the Environment
February 4, 2019

PURPOSE

This document provides an update to the Engagement Strategy from October 2014 in accordance with Condition 11.1 of the Alton Natural Gas Pipeline Environmental Assessment Approval dated May 21, 2013.

Condition 11.1 states: *The Approval Holder must develop and implement a Mi'kmaq Communication Plan for the Undertaking, which will include a process for communicating project details and seeking input from the Mi'kmaq community.*

ALTON'S FRAMEWORK: ALTAGAS LTD. INDIGENOUS PEOPLES POLICY

AltaGas Ltd.'s *Indigenous Peoples Policy* (IPP) is a document which guides the company's engagement with Indigenous peoples across North America. The IPP will guide and inform Alton's continued engagement with the Mi'kmaq of Nova Scotia, including regarding Condition 11.1.

The following is an overview of the IPP:

> *AltaGas recognizes the value of building enduring and trusting relationships with Indigenous Peoples whose legally recognized lands and traditional territories are within or in close proximity to the areas where we operate. The intent of the Indigenous Peoples Policy is to guide the development of mutually beneficial relationships over the lifecycle of our projects, while building business value from our business activities. AltaGas' approach to developing such relationships is guided by the laws and regulatory requirements recognizing and respecting the rights of Indigenous Peoples in the jurisdictions where we operate, and AltaGas' commitment to responsible development as manifested through our core values and policies.*

MI'KMAQ OF NOVA SCOTIA

With respect to the Condition, the term "Mi'kmaq community" is broad and could encompass a number of entities, including for example:

- Sipekne'katik and Millbrook First Nations
- Assembly of Nova Scotia Mi'kmaq Chiefs
- Kwilmu'kw Maw'klusuaqn Negotiation Office (KMKNO)
- Grand Council of Nova Scotia
- Atlantic Policy Congress of the national Assembly of First Nations
- Native Council of Nova Scotia and its affiliated organizations such as the Maritime Aboriginal Peoples Council
- Other Mi'kmaq organizations and individual members of the Mi'kmaq community

OVERVIEW

Alton values communication with the Mi'kmaq community. Alton is committed to sharing project information with the Mi'kmaq, and receiving feedback and input from the community on the project.

Over the years, the company has been in dialogue with members of the Mi'kmaq community including via the Kwilmu'kw Maw-klusuaqn Negotiation Office, Sipekne'katik First Nation, Millbrook First Nation, the Mi'kmaq Grand Council, the Native Council of Nova Scotia and its affiliated organizations, the Atlantic Policy Congress, Indigenous media organizations as well as individual community members including grassroots members.

RECENT EXAMPLES OF COMMUNICATION WITH THE MI'KMAQ COMMUNITY

The following recent examples demonstrate the variety of approaches to communicate with the Mi'kmaq community with respect to the Alton project:

- Alton project information mailing to Chiefs, KMKNO representatives, and Native Council of Nova Scotia representatives in June and November 2018. The mailings included information re: the natural gas pipeline, solution mining process and other matters.
- Ongoing discussions with staff and elected leadership at Sipekne'katik, Millbrook First Nation and members of the Mi'kmaq Grand Council.
- Advertising [redacted] which has significant Indigenous readership, in September and November 2018.
- Attendance and participation by Alton project representatives at Mi'kmaq cultural and community events such as Treaty Day and National Indigenous Peoples Day.
- Mi'kmaq-led cultural awareness training for Alton staff.
- Information Sheet for Sipekne'katik First Nation community meeting on project May 24, 2017.
- Email to Mi'kmaq organizations in April 2017 to alert to summer employment opportunity for Mi'kmaq student with Dalhousie environmental monitoring team.
- Meeting of AltaGas Ltd. representatives with Sipekne'katik Chief and Council, July 28, 2016.
- Open house, Millbrook First Nation, January 2016.

MI'KMAQ COMMUNICATION PLAN

Alton Natural Gas Storage is committed to timely and transparent communication with the Mi'kmaq community.

Alton utilizes a variety of approaches to communicate with members of the Mi'kmaq community, and to receive input in turn from the community.

The following approaches will be utilized for communication during preparation, construction and operation of the project's natural gas pipeline:

- Update mailings which are sent to the Chiefs of Sipekne'katik and Millbrook First Nations, KMKNO, the Assembly of NS Mi'kmaq Chiefs and senior representatives of other Mi'kmaq organizations.
- Face-to-face and/or community meetings.
- Offers of site visits for representatives of the Mi'kmaq community during pipeline construction preparation and construction.
- Sharing of technical and archeological information, as may be requested.
- Proactive visits, emails, phone calls and notices to discuss emerging issues and to convey Alton project opportunities, including business and employment opportunities, with members of the Mi'kmaq community.

- Responses to inquiries received (by email, voice mail or other means).
- Discussions around entering into Agreements with Mi'kmaq First Nations.
- Postings to the Alton website, www.altonnaturalgasstorage.ca The project website platform includes a section on Indigenous Relations where updates of interest to the Mi'kmaq community will be posted. The website is easily accessed and provides points of interface with the project team including email and phone contacts. Visitors to the website are encouraged to sign up for Alton project updates, an opt-in service from the website to share new postings made to the Latest News feed. The opt-in list includes members of Mi'kmaq organizations and communities.
- Invitation to join the Alton Community Liaison Committee (CLC). Alton has established a CLC per the NS Environment Guideline document for CLCs. The CLC was established in November 2015, and is working as an advisory committee, providing practical advice and feedback on the company's activities. The committee meets regularly and includes representatives of local government, landowners, business and community members. The terms of reference and meeting notes are posted on the Alton website in the Community section. The CLC is an opportunity for members of the Mi'kmaq community to provide an advisory role regarding the project. Alton has invited members of the local Mi'kmaq community to join the CLC, and will reiterate the open invitation in 2019.
- Advertising [redacted] or other similar websites to conveniently share a link to the Alton website as an important information source for the project. A general Alton advertisement appeared on the [redacted] from September 11-25, 2018 and was repeated November 5-19, 2018. Future ads can be tailored to include a specific link to project activity such as the natural gas pipeline construction.
- Direct mailing of Alton newsletters describing pipeline preparation and construction activities to Sipekne'katik and Millbrook Chiefs and Councils as well as representatives of KMKNO and other organizations.
- General delivery of Alton newsletter via Canada Post to Sipekne'katik and Millbrook First Nations community members.
- Identify matters of import to the community with respect to the Alton natural gas pipeline and develop content for the Alton website and other communications products to proactively address those matters and answer questions.

  This approach has been used to develop information content for the Alton community newsletter (*Mud in the Alton Channel* content, page 2 of September 2017 newsletter), Alton Updates (Fish of the Day – Atlantic Tomcod) posted to the Alton website on September 24, 2018, and the brine infographic posted to the website February 27, 2018, as examples.
- Attendance and participation by Alton project representatives at significant Mi'kmaq cultural and community events such as Treaty Day and National Indigenous Peoples Day.
- Sponsorship and support of events and activities identified as important by members of the Mi'kmaq community.
- Contact with representatives of Mi'kmaq media organizations and Mi'kmaq members of other media organizations to share project information.

NEXT STEPS

Alton will revisit the Mi'kmaq Communication Plan for Condition 11.1 on a semi-annual basis to determine if adjustments are required to maintain timely and transparent communication with the Mi'kmaq community.

Paul, Tyra

From: McLean, Mark G
Sent: Wednesday, April 10, 2019 11:32 AM
To: Neil, Lisa
Subject: RE: QP request
Attachments: Alton Gas - Sept 26 MM edits.docx

Hi Lisa,

I don't think the S. 36 regulations would impact us. ECCC could ask DFO for advice but this hasn't to date and we would likely provide the information already provided to the province.

I'm not sure if you wanted to include the role of ECCC in the general lines of the note? Also I made a couple of suggestions in the attached in the English Section only.

Let me know if you need more from me.

Mark

From: Neil, Lisa <Lisa.Neil@dfo-mpo.gc.ca>
Sent: Wednesday, April 10, 2019 11:16 AM
To: McLean, Mark G <Mark.McLean@dfo-mpo.gc.ca>
Subject: FW: QP request
Importance: High

Hi Mark,

We have been tasked with updating the QP for the Alton gas project, following a recent article (link below) – If you have a minute can you take a look and let me know if the information we have is still correct? In the article it says that ECCC is considering developing a regulation under s.36 – how would this impact us?

I can give you a quick call to discuss if that's easier

Thanks
Lisa

343-540-6524

-------- Original message --------
From: "Dieudonné, Rilene" <Rilene.Dieudonne@dfo-mpo.gc.ca>
Date: 2019-04-10 8:43 AM (GMT-05:00)
To: "Hawkins, Russell" <Russell.Hawkins@dfo-mpo.gc.ca>, "Vallieres, Jean" <Jean.Vallieres@dfo-mpo.gc.ca>
Subject: FW: QP request

Please see request for 2 QPs below. Please advise if SAR should be tasked with the first QP as well.
Thanks,

From: Villeneuve, Anne-Marie <Anne-Marie.Villeneuve@dfo-mpo.gc.ca>
Sent: April-10-19 8:34 AM
To: Dieudonné, Rilene <Rilene.Dieudonne@dfo-mpo.gc.ca>
Cc: Winfield, Nicholas <Nicholas.Winfield@dfo-mpo.gc.ca>
Subject: FW: QP request
Importance: High

HI Rilene,
The Minister's office is requesting a QP notes regarding this articles below.

Due in ADMO: NO LATER THAN 10:30 (ENGLISH AND FRENCH)

Conservation group calls for more research into effects of Nunavut mine shipping noise on narwhal
A Canadian conservation group says more research into the impact of vessel traffic on narwhal and other marine life is needed before a regulator in the Arctic territory of Nunavut allows a mining company to expand its production at one of the world's northernmost iron ore mines.
Radio-Canada

Also on this – where are they in terms of evaluating/assessing

http://v02.densan.ca/dfo/T_clips/m.bbclips.asp?articleId=/dfo/T_clips/190410/f03624XA.htm
Alton Gas project in NS

- **Possible damage to fish habitat, ECC lead most likely in combination with Province. MINO would like more info about the project please and QP note?**

Thanks

Anne-Marie Villeneuve
Manager, Correspondence and Briefing/
Gestionnaire, Services de correspondance et des affaires
Aquatic Ecosystems Sector/Secteur des écosystèmes aquatiques
Fisheries and Oceans Canada/Pêches et océans Canada
200 Kent Street – 10th Floor/ 200, rue Kent – 10ieme étage
Ottawa, ON K1A 0E6
Tel:613-990-7063
Anne-Marie.villeneuve@dfo-mpo.gc.ca

From: Denis, Joanne <Joanne.Denis@dfo-mpo.gc.ca>
Sent: 2019–April-10 8:23 AM
To: Villeneuve, Anne-Marie <Anne-Marie.Villeneuve@dfo-mpo.gc.ca>
Cc: Richter, Julie <Julie.Richter@dfo-mpo.gc.ca>; Ferguson, Peter <Peter.Ferguson@dfo-mpo.gc.ca>; Caron, Tiffany <Tiffany.Caron@dfo-mpo.gc.ca>
Subject: QP request

Anne-Marie

The Minister's office is requesting a QP notes regarding this articles below.

Due in MINO: NO LATER THAN 10:45 (ENGLISH AND FRENCH)

Merci
Joanne

Conservation group calls for more research into effects of Nunavut mine shipping noise on narwhal
A Canadian conservation group says more research into the impact of vessel traffic on narwhal and other marine life is needed before a regulator in the Arctic territory of Nunavut allows a mining company to expand its production at one of the world's northernmost iron ore mines.
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- **Possible damage to fish habitat, ECC lead most likely in combination with Province. MINO would like more info about the project please and QP note?**

Joanne Denis
Parliamentary Affairs Analyst, Legislation and Parliamentary Affairs
Fisheries and Oceans Canada/ Government of Canada
joanne.denis@dfo-mpo.gc.ca / Tel: 613-996-0552 – Cel: 613-818-5859
Analyste des Affaires parlementaire, affaires législatives et affaires parlementaires
Pêches et Océans Canada/ Governement du Canada
joanne.denis@dfo-mpo.gc.ca / Tél: 613-996-0552 – Cellulaire: 613-818-5859

September 16, 2016

ALTON NATURAL GAS STORAGE

General Lines:

- Fisheries and Oceans Canada provided expert advice related to the Department's mandate to the Nova Scotia Department of the Environment for this Project.

- Our advice included recommending mitigation measures to avoid physical impacts to Striped bass and other fish species found near the project area.

- Fisheries and Oceans Canada has concluded that with the measures proposed, the project is unlikely to result in serious harm to fish or impacts to aquatic species at risk.

If pressed on Indigenous consultations:

- The approvals for this project were issued by the Province of Nova Scotia and they were therefore responsible for consultation processes undertaken with First Nations.

Message général :

- Dans le cadre de ce projet, Pêches et Océans Canada a fourni au ministère de l'Environnement de la Nouvelle-Écosse des conseils d'expert relatifs à son mandat.

- Nous avons notamment recommandé l'adoption de mesures d'atténuation pour éviter des impacts physiques sur le bar rayé et les autres espèces de poisson présentes à proximité de la zone du projet.

- Pêches et Océans Canada a conclu que si les mesures proposées étaient adoptées, il serait peu probable que le projet entraîne des « dommages sérieux aux poissons ».

Si l'on pose des questions sur les consultations autochtones :

- Les approbations relatives à ce projet ayant été données par la province de la Nouvelle-Écosse, cette dernière était chargée des processus de consultation auprès des Premières Nations.

Background:

- The Project is located just north of Stewiacke, Nova Scotia in the community of Alton. It involves the underground storage of natural gas in low season (summer) to then be distributed during the high season.
- A key issue of concern is the effect of releasing salt brine into the Shubenacadie River. Water quality issues, including the deposit of deleterious substances in water frequented by fish, are primarily under the purview of Environment and Climate Change Canada (ECCC). As a result, ECCC has stated that the proponent will be required to comply with section 36(3) of the *Fisheries Act* and ECCC will be monitoring to ensure compliance.
- On September 26, 2016, 20 protesters blocked the road to the Alton Natural Gas Storage work site near Stewiacke, N.S., challenging the amount of consultation and the science on which environmental permits issued were based. Protesters want the company to stop work until a court appeal of the environmental permits is complete. The Mi'kmaq band and local residents are concerned that increasing salinity in the river poses a risk to some fish species.
- Nova Scotia Environment has the mandate to regulate various activities to minimize the impact to the environment. As such they conducted an environmental assessment of the project and issued an approval in 2007. Fisheries and Oceans Canada (DFO), along with other federal and provincial departments provided expert advice on the potential impacts of the project and adequacy of the proposed mitigation. The Department provided expertise in fish life histories, including on Striped bass and Atlantic salmon.
- Striped bass are assessed as endangered by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) and the Bay of Fundy Population is currently under consideration for listing under the *Species at Risk Act*. However, regardless of the status, DFO considers the protection of these and other vulnerable fish populations as a key priority.
- A detailed review of the Alton Gas Project was completed and detailed advice on mitigation and monitoring was provided to the regulator, Nova Scotia Environment. Following the review of the Proponent's draft monitoring and mitigation plan (submitted June 2014), DFO is satisfied the plan will address concerns outlined in the Department's earlier advice.
- DFO does not anticipate that the project will cause serious harm to fish and therefore an Authorization under paragraph 35(2)(b) of the *Fisheries Act* is not required. As a result, the Department did not have a legal requirement to undertake, or actively participate in the Aboriginal consultation being under taken by the Province.
- All information related to DFO's review of the project has been sent to the Kwilmu'kw Maw-klusuaqn Negotiation Office through the Nova Scotia Office of Aboriginal Affairs.

Contexte :

- L'emplacement du projet se situe juste au nord de Stewiacke, en Nouvelle-Écosse, dans la communauté d'Alton. Le projet porte sur le stockage sous-terrain de gaz naturel durant la basse saison (l'été), le stock de gaz étant ensuite distribué durant la haute saison.
- L'effet des rejets de saumure dans la rivière Shubenacadie est un problème très préoccupant. Les problèmes liés à la qualité de l'eau, notamment le dépôt de substances polluantes dans les eaux fréquentées par les poissons, relèvent essentiellement d'Environnement et Changement climatique Canada (ECCC). C'est pourquoi ECCC a déclaré que le promoteur devra respecter le paragraphe 36(3) de la *Loi sur les pêches* et que c'est ECCC qui sera chargé de s'assurer de la conformité.
- Le 26 Septembre, 2016, 20 manifestants ont bloqué la route vers le site de travail du promoteur, près de Stewiacke, N.S., contestant le montant de la consultation et de la science sur laquelle les permis environnementaux délivrés étaient fondés. Les manifestants veulent que l'entreprise arrête leur travail jusqu'à ce qu'un appel de la cour des permis environnementaux soit terminé. La bande Mi'kmaq et les résidents locaux craignent que l'augmentation de la salinité dans la rivière présente un risque pour certaines espèces de poissons.
- Le ministère de l'Environnement de la Nouvelle-Écosse a le mandat de réglementer diverses activités afin de minimiser les répercussions sur l'environnement. Par conséquent, il a mené une évaluation environnementale du projet et a octroyé une approbation en 2007. Pêches et Océans Canada (MPO), de concert avec d'autres ministères fédéraux et provinciaux, a fourni des conseils d'expert concernant les répercussions potentielles du projet et la pertinence des mesures d'atténuation proposées. Le Ministère a fourni une expertise relative aux caractéristiques biologiques du poisson, dont le bar rayé et le saumon de l'Atlantique.
- Le bar rayé est considéré comme une espèce en voie de disparition par le Comité sur la situation des espèces en péril au Canada (COSEPAC), et l'on étudie actuellement la possibilité d'ajouter la population de la baie de Fundy à la liste en vertu de la *Loi sur les espèces en péril*. Cependant, peu importe le statut de cette espèce, sa protection et celle des autres populations de poissons vulnérables constituent une priorité pour le MPO.
- Un examen détaillé du projet de stockage de gaz à Alton a été effectué, et des conseils détaillés sur l'atténuation et la surveillance ont été fournis au régulateur, soit le ministère de l'Environnement de la Nouvelle-Écosse. Après avoir examiné l'ébauche du plan de surveillance et d'atténuation du promoteur (soumise en juin 2014), le MPO a estimé que le plan permettra de répondre aux préoccupations soulevées dans les avis antérieurs du Ministère.
- Selon le MPO, le projet ne devrait pas entraîner de « dommages sérieux aux poissons » ni de répercussions sur les espèces en péril. Par conséquent, l'octroi d'une autorisation en vertu de l'alinéa 35(2)*b)* de la *Loi sur les pêches* ou d'un permis relatif aux espèces en péril ne sera probablement pas nécessaire. Ainsi, le Ministère

n'était pas légalement tenu d'entreprendre des consultations auprès des peuples autochtones ni de participer activement aux consultations menées par la province.

- Tous les renseignements liés à l'examen du projet d'Alton par le MPO ont été envoyés au bureau de négociation de Kwilmu'kw Maw-klusuaqn par l'intermédiaire du bureau des affaires autochtones de la Nouvelle-Écosse.

Name of Analyst: Tania Gordanier
Sector: Ecosystems and Fisheries Management
Telephone number: 613 990-8850